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TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 3356

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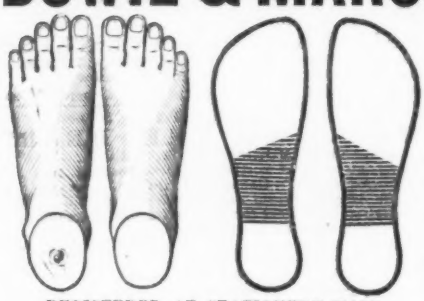

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# The Cavendish Lecture
ON
# A DAY'S WORK.

*Delivered before the West London Medico-Chirurgical Society on June 22nd, 1917,*

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MR. PRESIDENT AND GENTLEMEN,—"The Canadian Corps is ordered to take the Vimy Ridge." So ran the official order. Never was an order obeyed with greater alacrity or executed with more complete success. This task was set in January; it was performed on Easter Monday. It is of that day's work I propose to speak.

But, first, I take leave to assure you that I am fully sensible of this high honour—an honour which is shared by all who come from overseas: addressing an audience such as this from a foundation so famous as the Cavendish, made still more famous by the long line of my predecessors in this office.

As I scan the roll three persons arise before me with singular clearness: Jonathan Hutchinson, who first directed my young feet—they were young in those days, although they have since made many a weary step—towards the London Hospital, where I learned the master truth that nothing pertaining to humanity is alien to the practice of medicine. It was in his company on the hills of Surrey I first heard the lark sing as it sang that day over the trenches in Artois. Next on the roll is Frederick Treves, from whom I learned the purity of surgery—for in those days surgical cleanliness was quite new; and, last of all, William Osler, who gave to medicine in the New World a fresh direction and an upward turn.

There was a time when even in such company as this I should have felt no embarrassment, for the professor's gown had been familiar to me, and I was accustomed to the use and even the embroidery of words. But I have long since abandoned the way of letters, and left that no-man's-land of ambiguity, where jest and earnest meet. Fresh, now, from a life of reticence, in which yea is yea, and nay nay, I listen with alarm to the sound of my own voice.

Nor do I fail to remind myself that this is a scientific assemblage accustomed on such occasions to the precision and austerity of science. Far from laboratories and books, concerned, for the most part, with horses and men, content with a hasty guess at diagnosis, and practising the rough surgery of the field I am fully aware that to-night I am doing deliberate violence to that long tradition of science which has made the Cavendish lecture sacrosanct.

## THE SCIENTIFIC SPIRIT.

But, having embarked upon this new adventure, I shall be bold, and look even Science in the face. We are at war not alone with flesh and blood, but with principalities and powers. One of the principalities and powers with which we are at war is that unmitigated scientific spirit which is the peculiar possession of the enemy and is, happily, alien to our race.

That spirit is not our inheritance, yet none have done more than we for the advancement of real science, including the ancillary science of medicine and all sound learning. When I practised the trade of Professor of the History of Medicine I always regarded Sydenham as the great exponent of our method: "I take the view," he said, "that we shall go without any hypothesis, and study the conditions as they appear—the process before the explanation."

Upon many occasions I have developed that theme, but such is not my task to-night. Yet I cannot refrain from reminding you of an example, because it is the most recent, the work of James Mackenzie, who, by 20 years of quiet, patient observation set at naught the meretricious theory of the German upon the action of the heart. The German works in science as he works in war. He loves the underground. He throws out saps; he lives and moves and has his being in the darkness, when suddenly the free English spirit comes over the top in the full light of day.

Science with us is only a part of Life and a development from it. Our medicine is but a closer definition of what our fathers knew. The snake in India, the brazen serpent in the wilderness, the cat in Egypt—these sacred emblems indicate that those ancient peoples understood the genesis of "plague." This badge of maple leaves which I wear is copied boldly from a Roman coin, struck to commemorate the discovery that malaria can be mastered by draining the land and planting trees.

Let us grant to the uttermost that the pursuit of science is the pursuit of truth. The German cares nothing for the pursuit; he is all for the result, unaware that any given truth by itself is half a lie. There is the truth of the soldier, which is courage; the truth of the artist, which is beauty; the truth of the woman, which is virtue. The German believes that he has attained to all truth when he has discovered only a partial truth, forgetting that God alone is Truth, and that no man has looked upon God and lived. A lie which is only half a lie is far less deadly than a partial truth which is believed to be the whole truth.

Even to science the scientific spirit is fatal. It becomes dogmatic and then sterile. We have always kept in mind that there is a spiritual law in the natural world, whilst the German, lacking a philosophy of life, takes what he filches, and develops it in the cold void of abstract science. That is the genesis of his superman, a monstrosity developed from the tentative hypothesis of our own Darwin. Nay, more, the scientific spirit is the enemy of life. We live not by truth but by illusion, and the human heart creates those illusions which alone make life tolerable. There is a profound instinct which impels us to war against the truth, against reality. We eschew the fact, and take refuge in evasion. From the facts of life we fly to hope. The human race has nourished itself upon fiction, myth, and miracle. It still finds its fulfilment not in life but in immortality, not in formulæ but in religion.

The strength of the English race lies in its capacity to live and move in the realm of illusion, of poetry, whereby it discovers the higher truth and enters into the realm of emotion. The German, on the other hand, has deliberately shut himself out from this realm. As a consequence he sees darkly, judges falsely, fatally. He cuts himself off from the tree of life, and by becoming a scientist—"falsely so-called," as the Apostle is careful to specify—is become a beast without a background. One of your own has said it. We may then depart with some freedom, this year at least, from the tradition, and look at a common day's work.

## THE SCENE OF ACTION.

I have selected as a text this day's work merely because by a piece of good fortune it fell to our division to act as the point of the spear. Two Scottish divisions held one flank, and many a man went forward with a lighter heart on that account. The 13th Brigade—of an English Division—went over with us, those wondrous English soldiers who work in a rage and then fall into silence. Down Arras way the Australians were working, those handsome soldiers who will not hold back. When they get a free road to Berlin there will be such doings as the Seer never saw from Patmos. Our comrades from South Africa and from New Zealand were engaged elsewhere, as all the world has since learned.

It would be a misuse of the occasion and a mis-spending of this short hour to attempt a description in detail of that day's work. The result would be merely a piece of journalism. No description can make intelligible the events which happen in the operating-room or the lying-in ward, and there are many subjects over which it is proper to draw the veil. I should merely mislead you. The task can only be performed by an artist with time and space for selection. By an infinity of small things he would create a picture. He would make you see a long cliff, extending for 20 miles from the north-west to the south-east, in shape like a dog's hind leg, with the Souchez river breaking through at the joint. He would lead you up the landward slope, over ridges and valleys, until you came to the summit. He would guide across a high plateau, and from the edge you would look down upon the old sea which is now the French Flanders plain, with its red villages and green fields. This is the Vimy Ridge, which rises from Souchez and slopes down to Arras.

You should know also that it was on this very spot, and upon the Lorette Ridge, which is the twin ridge to the north, across the Souchez river, that the French made their supreme offensive in 1915. Here was the Labyrinth—

Souchez, Neuville St. Vaast, Ablain St. Nazaire, La Targette, and Aux Rietz—where rifles were discarded and knives served out in their stead. Upon these heights lie 60,000 of their noble dead in fields of crosses which extend as wide as a forest. At the time we were somewhat insensible to this great struggle.

More than 18 months had passed, until on that April morning the business of the Canadian Corps was to pivot upon its left flank, and drive the enemy into this old sea bottom, which was done according to schedule in 468 minutes. I say minutes, because the plans were drawn as rigidly as that, and they were drawn in as fine detail as an architect would employ for the building of a house. For three months we worked upon those plans with as much care as one would bestow upon a performance on a stage. The humblest actor had his rôle, and he was ready against the hour when the curtain should rise.

### A DIVISION: ORGANISATION AND LIFE IN THE TRENCHES.

An army is an extremely simple affair. It is composed of divisions, each one of which is self-contained, and has a staff with several branches. One branch deals with operations; another has to do with the persons who are to carry out those operations; a third is concerned with the housekeeping, by which all are clothed, housed, fed, and cared for in sickness and wounds. It is with this branch the medical service is identified. To each man it appears that he alone is carrying on the war, and in a sense he is. If he fails, something else goes wrong until all may be in jeopardy. In the end some single man in an army, like a housemaid in a house, has to do any given piece of work. I shall offer you an illustration. There is no water on the Ridge, and men need water. It was the business of a housemaid—he was really a staff major—to provide water. In the winter he began collecting petrol tins, and many a night I have heard him adjuring marauders to leave them untouched. To make quite sure, he had them stored behind his own hut until he had accumulated a pile as big as a church. One by one he had them burned out. He had special pack-saddles made to accommodate six tins. He filled these tins with sterilised water and had them loaded on mules. The pack-train was ready before the battle began, and the men drank water in the hour of their need. It was by no accident the Vimy Ridge was won. It was carried by the same methodical process by which a piece of land is farmed, a dinner party made a success, or a stage performance a triumph.

It is difficult, too, for you to appreciate how small is the battle area occupied by a division. It measured in this case 2000 yards in depth with a frontage of 1000 yards—about the size of a nice farm. This area was approached only by night or in fog, though ambulances and persons singly on foot might take a chance. Once the area is entered all life is underground. The road from Arras to Bethune runs at the rear, and the ground slopes gently upwards to the ominous crest of the flat-topped, gloomy Ridge. Through the bank by this road four trenches enter: two for going up, two for coming down. These trenches are joined by laterals according to the configuration of the ground, and one must learn his way about as a worm would learn his particular cheese. It is all very mysterious at first, but in time becomes as familiar as the streets of London. To cover the whole ground required a full day, and in clear, dry weather no exercise could be more pleasant, the trench floors clean, the walls defending from the wind, a strip of sky overhead, and it might be the voice of a lark against the background of noise.

It was a bitter winter there, as here. The soil was frozen to a depth of 14 inches. Rain fell. There was little drainage. The earth slid in on top of the water, and was trodden into a mess like dough. To walk the trenches under such circumstances is the last test of human endurance. On earth one can walk; through water one can swim; but progress can only be made inch by inch when earth and water are mixed in due proportion. One wears rubber boots hip-high, and from the tops a strap is fastened over the shoulders to prevent the boots being pulled off by the mud. On one occasion my orderly lost boots and socks, and came in with bare feet. If a man falls he may be lifted over the parapet, and left there till night; or he may lie where he fell, and be trampled under foot. It requires very little resolution to die: life is so hard, and death so easeful.

### MEDICAL ARRANGEMENTS.

When we took over early in February our business was to devise medical arrangements in accordance with the battle plan, by which casualties should be removed to a main dressing station on their way to railhead. No one system will suit all engagements, and the system must be devised in view of defeat as well as of victory. Happily our labour was largely wasted, since the advance was so rapid that our underground fortress dressing stations were not urgently required. This was especially hard on the man who laboured all winter at the construction of the posts. One officer almost wept with grief when he saw our troops storming overland rather than make their way through a series of tunnels to which he had devoted a year in constructing. In this area we spent two months excavating ten dug outs, commodious as this room, 20 feet below the surface, shoring the roofs and walls, and fitting the place with racks for stretchers. Nearly all this work was done by the medical personnel under the supervision of a sapper. Remember, too, that the work could only be carried on by night, in fog, or in quiet intervals during the day, and that every stick had to be carried through such trenches as I have described.

Regimental aid-posts and field ambulance relay posts were parts of a system which ended at the rear of the battle area where a huge advanced dressing station was partly excavated and partly built. Two tram-lines had been thrust up by night on either flank to be used for sending ammunition and rations up, and they were of great service in bringing casualties down.

Let us now attempt to follow the progress of a wounded man. When he falls he is attended by the regimental medical orderlies and is sent back a few hundred yards by regimental bearers to the aid-post, where he is more carefully dressed by the regimental medical officer. There he is handed over to the field ambulance bearers and borne by hand, by wheeled stretcher, or by trolley from one relay post to another until, finally, at a distance of one or two miles he arrives at the advanced dressing station. There the dressings are examined and, if necessary, renewed. Trains of trolleys drawn by gasoline engines are in waiting to bear the loads farther to the rear, where they may be accessible to the motor ambulance convoy, which takes them to the main dressing station. Here the cases are re-dressed and so sent on to railhead, clean, warm, and fed.

Of the wounded in detail one sees little; one sees them in the mass. Our business is to speed them on their way, and 12 surgeons in a dressing station, working night and day, will clear the casualties as fast as they are brought in. The walking cases went direct from the field to collecting points and were sent down in 'buses, 40 at a load. The lying cases neither move, nor speak, nor utter a sound. It is only when we go to the base or come to England that we see the wreck of war and the pity of it all.

I cannot insist too strongly that medical arrangements must be devised anew for each action; they vary with the plan of battle, and must be modified as the battle proceeds. On the day in question an ample supply of blankets was assembled, but in the night a bitter wind arose, with wet driving snow. Within an hour 600 additional blankets were at the front, assembled and transported—it does not matter how.

Zero hour was at the dawn of a bleak morning. By 6 o'clock the wounded were coming in; by 7 the prisoners were marching down by companies; by 8 the supply trains were moving up, and by 9 o'clock the whole world was alive with men and horses and motors over roads that were spewing up their stony entrails. When the action was over the battle area was like a heavy cross-sea which had been partially transformed into land. Further advance was impossible by reason of the elements, earth, and water.

### DIFFICULTIES IN THE ADVANCE: RAPID EVACUATION OF WOUNDED.

Wonder is often expressed that after a large action the advance is not more rapid. The example of little things will help towards an understanding. The morning after, I was making my way through crater and crevass upon some special business, when I saw a boy gathering flints in a sandbag. We two seemed to be alone in the world. There were others, but they were concealed as they toiled up the holes and hollows. He was finding material to make cement for wheel bases of the guns. A mule climbed out of the earth. He had a pannier with six shells on each side. The advance was laborious as that. Horses must have footing, else they will go downward instead of forward. Roads must be built from the bottom upward, and material for railways must be carried by the strength of men.

Sixteen battalions were engaged on this 1000-yard front, 16 men to a yard. Each one had its piece to do, and when done another battalion passed through and took up the advance. All winter the performance had been rehearsed behind the lines on a terrain marked off with tapes to imitate the battle area as discovered by aerial photographs. To each battalion was allotted a certain number of minutes for its task. All was over by 2 o'clock, and before darkness fell the field was clear. The evacuation from the front was so perfect and rapid that cases began to accumulate at the advanced dressing station; and there they lay, a piteous spectacle, but their presence was the finest tribute ever paid to the Medical Service. A general passed by, and when he saw the wounded lying in ranks on each side of the road, covered with snow, he thought the Medical Service had broken down, until it was explained to him that all casualties were dressed and fed, eased with morphia, and covered with blankets, instead of lying where they fell. Additional convoy was procured, and by midnight all were in their beds. That day's work was over.

### THE MEDICAL SERVICE OF A DIVISION.

You have heard much of our unpreparedness for war, but the Medical Service leaped up full-armed when the first call sounded. For long years the Royal Army Medical Corps had worked upon the problem and found a plan. This plan had been adopted in Canada, was well understood, and the two services have operated in a perfect harmony. The best of the profession volunteered, and many of them had some previous training in military affairs. In my own small unit we had in command a surgeon of the first rank; second, an officer who was at once a surgeon and a soldier; third, a dermatologist of the first class, two accomplished physicians, and at least two surgeons who had already had a thorough training. Indeed, I have heard it said that the professional qualification of the men at the front is too high. A man who can succeed in medicine and surgery can succeed at anything.

It is a canon of military law that one may neither praise nor blame his superior officers; and I am neither praising nor blaming when I say that our D.M.S., Surgeon-General Foster, is a master of organisation, proven by two years' service in the field from Ypres to the Somme and back to Souchez; that Colonel Ross, his successor in the corps, has not left the front since the early days of 1915; that our A.D.M.S., Colonel Fotheringham, was on the strength for nearly 30 years, and had long been one of the leading consultants in Canada; and that his successor, Colonel Jacques, who was in immediate command during that day's work, has had 10 years' experience in the permanent force. It was, then, not by accident that the work went well.

It must be hard for you to understand how strictly military is the Medical Service at the front, that is, the service in the division as distinguished from the service on the lines and at the base. Between the two a gulf is fixed; and it is with the division we are especially concerned to-night. In a division there are about 20 regimental medical officers, and three field ambulances with 9 medical officers each, or 27 in all. The personnel is divided into bearer, tent, and transport sections, comprising 250 men, or 750 to the three ambulances. For transport each ambulance has 50 horses, 7 motor and 3 horsed ambulances, with general service, limbered wagons and carts. Each section is self-contained, and marches with bearers, tent orderlies, transport, and equipment. At any moment a section can fall out, march off, and open up with all appliances for life and work in the field. Fuel, food, fodder and water are carried which suffice until rations are drawn. The sections can be as quickly assembled, and the bearers of all ambulances may be pooled for such large operations as took place at Vimy and on the Somme.

For such precise movements a high degree of military training is essential; and in physique the men must be the best, for the work is heavy and the marches arduous. These ambulance bearers and their officers have their advanced headquarters 200 yards from the parapet in the regimental aid-posts, and in action they go over just behind the infantry. They are trained soldiers, the transport carried arms until quite recently; they were practised in musketry, and all were qualified to take their place on parade with the other elements of the division.

The Red Cross no longer exists except as the emblem of an eleemosynary institution which provides an outlet for the love of civilians for their soldiers. The Medical Service has become an integral, and not an ancillary, part of the Army. The Red Cross provides no especial protection because it is so closely identified with the service that neither side can recognise it, although I am bound to say that I have never seen any deliberate violation of the traditional emblem. On the contrary, I think the enemy has withheld his fire from our stations which could be observed as such. He has, of course, destroyed our ambulances by shell fire; he has killed our officers and bearers; he has dropped shells and bombs upon our stations—but that is the chance of war.

A field ambulance, then, is not especially a medical problem. In my own unit, which contains nine medical officers, the Colonel fell at Courcelette, a Major gained the D.S.O., two Captains won the Military Cross, two were mentioned in despatches—all for military virtue as apart from professional knowledge and skill.

### PREVENTION AND TREATMENT OF SICKNESS.

But this day's work was merely an incident or an interruption in the regular work of the Medical Service. We have several million of men to keep in health and care for in sickness, and the system by which those ends are gained is much more efficiently organised than it is here in London for the civil population. First come sanitation and prevention of sickness. In all this time I have never detected a foul odour except the fœtid odour of asphyxiating gas or the noisome smell which arises when an old burying-place is disturbed. Except for a few days on the Somme, I have not seen more flies than one would see upon a well-kept farm. Purified water is put into the men's bottles. To drink from an unauthorised source is a crime. Wells are examined even whilst they are yet under fire and the food is scrutinised before every meal. Men are bathed as methodically as they are fed, and by fire and steam the advances of the humble, but friendly, louse are discouraged. One acquires a certain pity for this most dependent and helpless of all creatures—his means of livelihood are so restricted and he is so unbeloved. A battalion of 1000 men can be inoculated in 35 minutes; that is an illustration of the speed and organisation of the Service.

The number and variety of hospitals is almost perplexing and it taxes one at the front to remember where each class of case is to be sent. Mild infections go to one place, more virulent cases to another, and the channels are kept distinct. There is segregation or quarantine, and a mobile laboratory is always available for exact diagnosis.

I am astonished continually at the extraordinary talent that is available. London itself is not more rich. Specialists abound on every hand. A man came to me with an obscure skin disease. I referred it to our Major, who just happened to be a dermatologist. He named the condition "erythema multiforme exudativum iris." The diagnosis was written on a field medical card, and with the man it went forward to England. It came under the eye of one of the most famous of London specialists. He sent back an inquiry through the usual channels because the diagnosis was correct; and he was, I thought, a little irritated, as he supposed no one in the Army but himself was entitled to make so fine a distinction. It turned out that this young Canadian Major had once been a pupil of this London dermatologist.

The Medical Service, above all other services, has done its perfect work. It has yielded an army without sickness. I have never seen a case of typhoid, and the few infectious cases are of the nature of children's diseases—measles, mumps, chicken-pox. For the first time, also, in the history of the world we have an Army which is free from venereal disease. For a time it was part of my business every morning to scrutinise the returns from 30,000 men, and days would pass without a single case, especially when leave was off. We have come to think of London as a place where men contract venereal diseases. That is a saying which I commend to you. There are occasional sporadic cases. To conceal the disease is a crime. The infected man is handed over to the assistant provost-marshal, who ascertains the source and has the source of contagion deported. The disease is regarded as a self-inflicted wound by which a man may secure his return from the front, and some base fellows contract the disease deliberately, just as they shoot off their fingers or toes. In one house were two women. One of them was infected and the other was free. The one who was infected demanded 4 francs for her services; the other had to be content with 2. I can recommend

to you a provost-marshal who will free England from venereal disease in six months. It might be worth the effort.

The Medical Service is no longer the poor relation of the Army. By the miracle it has performed of keeping the Army fit the consideration accorded to the service is unbounded. New problems face it every day, problems that must be solved. Trench feet in the first and second winters were likely to cripple the Army. Last winter the methods of prevention were so sure that a case of trench foot was a curiosity and brought stoppage of leave upon a battalion which produced them. Medical officers may not command; they advise. But he would be a rash commanding officer who would disregard advice repeatedly given.

For a year we were perplexed by trench fever, and I am afraid we showed too little sympathy with the men who were suffering from the malady. The pain in the shins, which is almost intolerable, was too often attributed to myalgia, but, thanks to the service at the base, we now know better. We have learned to discriminate between the varieties of "shell shock," which range from cowardice to mania.

### THE OUTLOOK.

By that day's work on Vimy Ridge we convinced ourselves, and proved to the enemy, that we cannot be beaten. After that other, and later, day's work on the Messines Ridge—a ridge I watched for 11 weary months—we can say with surety that we shall win, that the enemy will be defeated, that he will defeat himself in the slow effluxion of time. We are now free to prolong the war until it suits us to bring it to a close. Up to the present we have been fighting for our lives, unable to indulge with confidence in the full hope of a slow, relentless, methodical victory.

In the beginning we were inclined to take the German at his own estimate of himself, to look upon him as a tree walking. Now we have the true measure of him, and we are not in the least afraid. Docile yet courageous, hating other lands yet loving his own, hysterical yet obstinate, he continues to be a formidable foe. Although we have long since matched him in equipment and surpassed him in organisation, we still deceive ourselves about his powers of subsistence, since comfort to him is penury to us. We were close upon his heels in Vimy village, and a detailed examination of his abandoned stores was not encouraging. In one dug-out there were sides of bacon, abundant bread, potatoes, bottled waters, dressings, drugs, articles of new, sound leather, phonographs, and a copy of Kant—by no means a bad equipment for carrying on war. Prisoners who have helped us to clear many a field are capable and diligent, with a certain patient, pathetic helplessness, but a high confidence even yet. Nor do we forget the surety of the enemy's intelligence and his quickness to act upon the results of his experience. Liège, Namur, and Antwerp taught us the futility of the Vauban fortress. Vimy and Messines taught him the futility of massed trenches, and he instantly adopted a new defence. His line is now not a line. It is a fortified country; but to that also we shall find an answer.

The end is not yet, nor is it even in sight. My counsel is that you should close your eyes to the end. Look upon war as a normal condition. Forget it, as all normal things are forgotten. Cease praying for a speedy end—and peace, else you will acquire what the French call the psychopathy of the barbed wire. Peace and the end will come when your unhampered armies shall have performed their task. At one time there was ground for alarm, and excuse for panic. Now there is none. This very night we see the days grow short for the fourth time since we took arms in our hands. Several times we shall see the days grow long and short again before we shall have our will upon our enemy; but we are now free to turn our eyes away from the thing itself and to reflect upon it, to scan the long course by which we have arrived, and so shape our course towards the end—in short, to examine our experience and be governed by it.

In these three years we have seen grow up the most perfect military organisation the world has ever known. This force was created by the genius of this people. It has arisen out of their life, out of their traditions, out of their way of doing things, the tradition, namely, that each man shall go upon his own way with unimpaired liberty, to think, believe, and talk as he likes, to trade as he likes, to work, or refrain from working, with perfect assurance that in time of need the old, dull instinct and dumb sagacity of the race will assert itself, that every man will fall into ordered ranks and proceed upon the appointed way, even unto the end.

### THE INSPIRATION OF ENGLISH LITERATURE.

All these years I have heard a cry of self-deprecation and self-pity that we are not as other men—even as the Germans—are. I have seen it urged, for example, that we should retain the classics in our schools, since the Germans spend more time upon classics than we do. The Hun is yet in our hearts. He discovered the association between the teaching of science and material prosperity. There are, on that account, persons now amongst us, interested in education, who never thought of the subject until it was presented to them in this light. If they had their way we should lose the war even by winning it. We have put the matter to the test, and it will be time enough when we have lost to recast any element of our life in a Germanic mould.

We have put all upon the cast of war—our lives, our property, our way of life. We have not yet won. We shall lose, and we shall deserve to lose, if now we are false to the civilisation by which we have attained to these heights, and forsake our old custom—namely, "to defy power which seemed omnipotent, never to change, nor falter, nor repent." We have no cause for repentance. This is not the time to falter or change. You English require no alien teacher. Trust your own. It is written in your books. All else to you will be as a garment put on. Trust your Chaucer, your Shakespeare, your Dickens, your Kipling. They will carry you through. Trust your own poetry, and let German science go. Poetry is the last possible utterance of humanity. Not by wisdom alone do poets write poetry. By some sort of inspiration they say many fine things, and do not themselves understand the meaning of them. It is the Race which speaks.

Illusion is the prerogative of the English. Their strength lies in that; because it goes with eternal youth. When the illusion fades old age has come upon us. It is the inspiration of all our literature, for great writing and all religion is an attempt to weave a veil of beauty to hide the facts of life. All other writing is an attempt to tear this veil aside. This in the work of the cheapjacks of literature and of religion. Religion and literature are great according to the promise which they hold out, like the promise of spring which by some magic persuades the hungry human heart that even the dead will come back to life, the promise to youth of the perfect woman—all dreams of youth which men reverence even after they are awakened. Above all others we have created the illusion of war in virtue of which men go eagerly to their death. If it were not for this quality how should we have survived those dreadful days of 1914?

### THE LESSONS OF THE PAST.

To this old race there is nothing new. This is not the first time we have been at war, nor will it be the last. War is always the same in principle, though it may vary in method. Even the battle-fields are the same from the time of Cæsar until now. On the way up from the Somme we followed the very road by which the war-like Henry retreated from Amiens and Peronne and we passed within a little of the field of Agincourt. This area might well be set apart by this new League of Peace as lists which nations must use when they feel that they must fight. At first the situation was new to us. It is over a hundred years since we were at war. All affairs in the interval were merely expeditions, and we still describe our considerable establishment in France not as an army or armies, but as an "Expeditionary Force."

We made one miscalculation—only one. We were well aware that a nation goes to war as a pastime or diversion from the *ennui* of peace. For the first time in our history we found ourselves face to face with an enemy which attacked us as a matter of business.

But for all else you will find precedent. Look in your own old Langland and you will see as in a looking-glass the situation in which we find ourselves to-day. This very people was in trouble with war and want of food. Piers Plowman offered to guide them to the truth, for, he said, Conscience and Mother-wit had showed him her dwelling. But, first, they must help him to finish a piece of ploughing. Remark that the Plowman does not employ women on the land. Those of the common sort are "to sew the sack to keep the wheat from spilling," to "spin wool and flaw," to "weave cloth," and teach their daughters the art. Lovely ladies are to make embroideries "to honour churches." The knights, too, were eager though ignorant. "Teach me,

quoth the Knight, and, by Christ, I will try." The Plowman would have no amateurs—women or men. Let the knight administer justice so as to "keep down the wasters and the wicked men who spoil the world." Then they all fell to work "full eagerly" each man in his own way.

I take it upon myself merely as a Voice to utter one word of warning to this people. It is for England we all are fighting, the England of history, not for a Utopia or any figment of disordered minds. There are disordered minds in our absence working to wrench the old internal polity from its foundations, and no department of life is to remain untouched. There is to be a new electorate, a new drink or no drink at all, a new religion, a new education.

We know what labour is; but we do not know a Labour which confers, and deputes, and strikes, and has Ministers of its own. When a section of the community develops an interest and authority apart from the interest and authority of the community as a whole, there is then in the organism an overgrowth which is at first a foreign body and eventually becomes indistinguishable from a cancer.

In all this spectacle of war the noblest spectacle of all is "the golden metall of our souldiers"; and the means by which we are attaining to victory are the means by which victory has been attained from the days of Ralegh even until now—namely, "the employment of our common English souldier leavied in haste from following the cart or sitting on the shop-stall." To this we have added a new element, the very flower of the flock, the precious offspring of the universities and schools, all our beauty and our youth.

Has this "souldier" from the soil done so badly that his children must be educated from books after the technical, practical, Gradgrind, German method? The soldier will see to it. He himself may have been educated to such a point that he knows the nature of the soil, the place and time for sowing his corn, the public-house which sells an ale most tasty to his palate, the choicest spot in the parish for sunning himself on a Sunday afternoon. In this new hard school of poverty, temperance, and obedience he has educated himself still more finely, and by practising those virtues he has made of himself a "sufficient man."

Only the other day I read a solemn lamentation over the indisposition of the English to speak with foreign tongues. An experience in a ship trading in the Levant was cited. The captain had traded along these coasts for 20 years, and yet could not speak a word of Italian or Greek. His method of unloading his ship was to take a big stick in his hand, make himself red in the face, sweat at every pore, and curse in his own vernacular, whilst an Austrian lying alongside was addressing the natives in their own language. The narrator adds, however, that the stevedores grinned, wondered, and obeyed the English sea captain. It may be that he had the proper way of unloading a ship, and that his education was the best for life in the Mercantile Marine.

### THE MESSAGES OF WAR.

The value of war lies in this: it restores simplicity to life, and brings down the top-hamper which peace has superimposed. At the moment you are striving to reform a social life which is passing away. This generation has been dominated by the machine; and all effort has been expended upon machines for making more machines instead of towards the work itself. Science has been crying aloud: "Come and see what I will do for your souls"—and we have seen. I think that in future his giantship will go somewhat crestfallen, and that machines and those who tend them will have less power.

The danger of insidious revolution is a real one. By winning this war we may lose it. Equal in importance to winning the war is making ourselves worthy to have won it. The winning of three wars was the ruin of the German, and we have seen the process of degradation with our own eyes. Up to the present generation there was a German with human ideals, that Germany about which Carlyle gabbled—by which he wrought us much evil—and Matthew Arnold, the first of our own heretics, vaunted continually; but we have seen it become detestable by reason of a carnal and spiritual vulgarity. There is no primitive truth in its inward parts; even when its words are sincere its thought is double. This people, which was once great, took its place at the mill like a blinded giant, turning out meanness and cheapness for any Philistine. It lost all sense of beauty. Music died in the orchestration of Wagner and the heathen shouting from the stage; literature perished in a contemplation of their national hero who sacrificed his soul for the lusts of the flesh—an elderly professor with the powers of Hell at his command, whose ultimate good was science and the violation of women.

Even yet I see no signs of repentance. Evil is yet their good. But I think I do witness a sign that the just and righteous judgments of God are about to fall upon hardened and unrepentant sinners, and that this Caliban which yet, alas! squats athwart the pleasant land shall soon quit the earth and depart to his own place in the cold void of history. His habits are not new. Two hundred years ago we saw the work of the Hun in Scotland. You know him as the Duke of Cumberland. By common consent we still describe him as the "Butcher." But we, for our good, are reviving amongst us certain primitive truths: that a nation cannot exist which is detached from the soil, and that the perpetuation of the Race depends upon the primitive in Woman.

Mistrust, then, your lesser intellectual breeds: your young Byrons who cursed when Waterloo was won, your young Wordsworths who cast up the red caps of Revolution, as many in these days are casting up their caps too soon. Mistrust your "intelligentsia," mere bores and busybodies, who seize the moment to put into effect their vagaries. A nation governed entirely by the paid leaders of men who work with their hands may prove to be no more desirable than a nation governed by men who trust in their sword arm alone. To exchange a military union for a trade union is to exchange thongs for scorpions. Depend upon the safe, solid sense which you have inherited from your fathers. These are no times for experiments. We have been saved in former times, and we shall be saved again if we put our trust in the old, unaltered blood, in the passion, the piety, and the prowess of the line.

You have heard it said that all great wars in the past were religious wars. This, too, is a religious war—against the calculated atheism which would make of religion a speculative department within the bounds of the scientific spirit. This is the spirit against which the mediæval church continually strove by persuasion, remonstrance, and cursing, and finally called to its aid the secular fire and sword. The church with profound instinct discovered the tendency which would inevitably produce a race of logical German ultra-Protestants of which the Fathers prophesied. It may, indeed, be that the German has lost his soul; for races, nations, and men do arrive at a point where they have no soul to save.

I think that this class of intelligentisia has been worse infected, and has done more than any other to spread the Germanic virus. Even in the universities the "German-trained" scholar was the thing, and in those doubtful, early August days their influence was against the instincts of the people. Quite recently I heard one of them say that he considered the German method for disposal of their dead "extremely sensible."

When I came overseas, I called upon one of these "scientists," and he could not restrain his astonishment over the queer garb I wore. He asked me the meaning of it. I did not tell him. He would not understand. In a place so remote that many of you have never heard its name the alarm of war reached us 24 hours after it had sounded. A boy was sitting beside me reading a book. He laid down the book and walked a little way. I picked it up and read:—

> "It is not to be thought of that the flood
> Of British freedom which to the open sea
> Of the world's praise from dark antiquity
> Hath flowed with pomp of waters understood—
> That this most famous stream in bogs and sands
> Should perish, and to evil and to good
> Be lost forever."

The boy came back and said, "I think I will go to the war." "To-night or in the morning?" I asked. "In the morning," he said. He went away in the morning. I saw him next in Plug Street Woods. A little child does sometimes lead safely.

In the absence of your soldiers keep the national emblems bright. Keep the fountain of honour undefiled. The majesty of the King appeals with peculiar intimacy to all who can claim the northern kingdom for their home, or the home which their fathers left to adventure over other seas. By nature we are Royalists, and upon this matter we are not likely to suffer from false illusion. The Crown has become the seal and bond of Empire. We from over-seas are not especially enamoured of your Houses of Parliament or of our

own either; and, if we can believe what we hear, you yourselves have no great pride in them. These Houses would do well to remember that there is always an appeal to the King, and when such an appeal is made by men accustomed to arms it is likely to be irresistible.

What love we have lost for Parliament we have reserved for our King. A soldier's love for his King is a passion in itself as profound in nature as the love of man for woman. It is only measured by the degree to which the soldier himself is kingly. No soldier will ever forget the day when the King rode athwart our closed columns and looked into one's eyes with his lovely Stuart eyes. He is the final human being to whom the humblest soldier may make appeal. This instinct of the soldier of our race, that even in this world in the person of the King lies an abode of justice and mercy, is as ineradicable as the instinct which impels men of every age and race to lift beseeching hands to Our Father which art in Heaven.

# Reflections
ON THE
# LIMITATIONS OF VACCINE TREATMENT.[1]

BY ROBERT J. ROWLETTE, M.D. DUB., F.R.C.P. IREL.,
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IT is my aim this evening to sketch very briefly the place that vaccines should take in therapeutics, and to consider what may fairly be expected of vaccine treatment and what are its limits. I am aware that the observations I have to make are obvious and even commonplace, but I have often heard them overlooked both in public discussion and in private conversation.

## THE DIFFICULTY IN ESTIMATING THERAPEUTIC RESULTS.

It is notorious that no judgment in medical practice is more difficult than the estimation of the value of a particular method of treatment. A new method is introduced, it wins a certain amount of favour, it may become the fashion, and unless it is accompanied by some obtrusive disadvantages or dangers, many of us are convinced that the treatment is, if not "the last word," at least "a distinct advance," and we go on with it until a new fashion takes the place of the old. Our reasoning on these matters is never logical, and rarely individual. We are governed by laws—if they be laws—of herd psychology. Our conclusions are instinctive, not conscious.

This is, in part, due to the difficulty of forming a judgment of cause and effect in a highly complex set of phenomena. It is difficult or impossible to arrange a therapeutic experiment in such a way that the conclusion is irresistible. The problem is not so complicated in surgical as in medical treatment, as the conditions more closely approach those of scientific experiment. Nevertheless, surgeons are not free from the influence of fashion—that is to say, from the sway of inaccurate judgment. Gastro-enterostomy, appendicectomy, colectomy, Jackson's membrane, have all had their vogue, and the nuciform sac is not the exclusive specialty of an imaginative surgeon.

In every branch of medicine we meet this difficulty of estimating therapeutic results, but in the case of vaccines the difficulty has been increased by certain more or less accidental circumstances. Vaccine treatment came to us as a gift from the laboratory. It came, therefore, with a certain scientific pedigree which demands for it our consideration, but it is often presented by men trained in laboratory methods, without clinical experience, and without the knowledge necessary for the comparison of therapeutic results. On their side, clinical workers, being unfamiliar with the technique of vaccines, have been content to leave their administration to those who were. It has come about, therefore, that for years, and, indeed, to a certain extent to the present day, vaccine treatment has remained in the hands of men of laboratory training. It is, however, clinical experience, and that only, that can seal its value.

[1] An address delivered before the Section of Medicine, Royal Academy of Medicine in Ireland.

The enthusiasm of the introducers of vaccine treatment—an enthusiasm often untempered by clinical experience—has put forward somewhat extravagant claims. These claims, misunderstood and misrepresented, led the optimistic to expect miracles. But miracles do not happen, and those who were disappointed, on the one hand, and, on the other, those who had their prophesyings of evil accomplished, agreed to declare that they had been hoaxed. The number of successes, however, was sufficient to keep up some belief in the miracles, and between the faithful and the sceptic there seemed to be no common ground. Certain trading firms saw their opportunity, and by making impossible claims for inferior products caused both disappointment and disgust. In short, an abnormal state of mind was produced which has prevented the profession exercising a normal judgment.

We have, however, passed through both elation and depression, and we are, I hope, now in a position to judge coolly of the rightful place of vaccines in treatment.

## PREVENTIVE INOCULATION.

First, as regards their place in preventive medicine. The experience of the present war puts beyond all question the value of preventive inoculation against the enteric diseases. Our troops have been inoculated against typhoid, but not at first against paratyphoid. We know how rare has been typhoid, although paratyphoid, hitherto regarded as a rare disease, has been in some areas by no means uncommon. Yet medical officers from most of the fronts have made us familiar with the insanitary conditions under which the men have to live and of the gross contamination to which much of the drinking water is subject. If our troops had to rely merely on sanitary precautions in the ordinary sense and were not protected by inoculation there does not seem to be any reason why they should not suffer from disease as troops suffered in South Africa and in most other campaigns in history.

In our ordinary home-medicine we have also experience of the efficacy of preventive vaccination, particularly in the results of inoculation against recurrent catarrhs of the respiratory organs. The problem is more complicated than in the case of typhoid in that we are dealing with infections by organisms with which we are not so familiar and, moreover, we are dealing not with a single organism, but with several, out of which it is a matter of difficulty to select the main infective agent. We have not, therefore, as good a record of success as in inoculation against enteric, but, nevertheless, successes are sufficiently numerous to justify us in the hope that with a more intimate knowledge of the bacteriology of the respiratory tract, and more particularly with the development of knowledge of a correlation between the different forms of respiratory catarrh and different species of bacteria, we may soon be in a position to judge what class of cases may be satisfactorily treated and what class we cannot expect to influence. It must not be forgotten that the attacks of some diseases, of which the best example is perhaps influenza, do not appear ordinarily to confer immunity, or at any rate an immunity which persists for any length of time. In the case of such diseases we are not likely to produce any persistent effect by preventive inoculation.

## VACCINE TREATMENT: ACTION AND LIMITATIONS.

I have dealt with the question of preventive inoculation first for two reasons. In the first place, the claims made for vaccines are admitted. But, in the second, the consideration of the prevention of disease by immunisation helps us to understand what we have a right to expect from vaccines in curative treatment. Active immunisation is the training and marshalling of the protective forces of the body against a particular kind of attack. That is to say, it is an attempt to stimulate a natural process—the process by which the body naturally defends itself against bacterial invasion.

A vaccine is not a new ally in the fight between the parasite and the host, assisting the latter to destroy the former. It is only a stimulus to the body to exert to the full its natural powers of resistance and protection. Of itself it can do nothing. Although, then, one rightly speaks of vaccine treatment as specific, it is specific in quite a different way from the so-called specific action of drugs. We suppose quinine to be specific for malaria, and arsenic or mercury for syphilis, because we believe the drug in each case to exert a

special destructive action on the infecting parasite. But vaccines are only active against bacteria mediately in that they stimulate the production of bodies which possess special destructive powers toward particular organisms. Vaccines are, therefore, in a sense only specific at second-hand.

As the action of vaccines is merely stimulative of certain natural powers of the body, it is clear that if the body is already exhausted, if it is no longer able to produce the substances, the vaccine fails. Moreover, in cases where it does not fail, its success is proportional to the power of the tissues to respond to its call. To expect uniform success from vaccines is therefore as unreasonable as to suppose that the body can never fail in its defence against attack.

It follows that the cases in which we may expect the best results of vaccine treatment are those in which (1) the body has not yet lost its natural power of resisting infection, and (2) in which there has not been great tissue change. If the body has no power of resisting infection the vaccine is quite inert. It is as useless as a trumpet-call in a deserted barrack-square. It is not possible to tell whether such cases really occur, nor how to recognise them if they do. We must, however, be prepared to meet them and not to be disappointed if the inevitable happens.

The second qualification is of more practical interest. When grave tissue changes have taken place we cannot hope by any method of treatment either to restore lost tissue or to cause the absorption of masses of new tissue of a degenerate order. Vaccines can only produce a resistance to an infective process—they have no effect in dealing with the results of that process after the process has ceased. I do not suggest that there are not other agencies in the body at work to restore damaged tissue to the normal, but these agencies are neither helped nor hindered by vaccines. Let me take one example:—

A Fallopian tube becomes infected by, let us say, the gonococcus and suppuration follows. While the infection lasts, its progress may be hampered or prevented by vaccine treatment. But once the gonococcus loses its vitality, vaccines give no help to the tissues in their struggle to return to the normal. Neither will vaccines cure a stricture of the urethra consequent on gonorrhœa. This is so obvious as to appear commonplace. But let us supply the same reasoning to the effects of rheumatic infection, whether on the joints or on the valves of the heart. We may reasonably hope to hamper the progress of rheumatic injury or to arrest it altogether. But if gross tissue changes have occurred, they cannot be repaired by vaccines. It would be as reasonable to suppose that, if the invaders were to-morrow driven from the fields of Flanders, those fields would be restored forthwith to the condition in which they were three years ago. The battle may be over, and the invaders destroyed, but many of the traces of battle are ineradicable, while others will persist for years. Louvain and Ypres will never be again what they were three years ago. Neither will the heart valves that have been eroded and fibrosed in the battle between the infecting cocci and the protective agencies of the body be the same again.

### SCOPE OF VACCINE TREATMENT.

The question is not infrequently asked, What class of diseases should vaccines be employed in? The answer, bearing in mind the limitations I have already suggested, is, Every infective disease due to bacterial origin in which the bacterial cause can be discovered. The acuteness or chronicity of the condition is beside the point, though it may have much to do with the method of administration. A similar remark applies to the question whether the disease is general or local. In every case where a fight is going on between the body and an invading bacterium there is reasonable hope that the defensive forces will be strengthened by the administration of a vaccine. But, as vaccines are specific, a correct bacteriological diagnosis is necessary. In this vaccines are at a distinct disadvantage if contrasted with other methods of treatment. By rest, suitable food, good nursing, and relief of unpleasant symptoms we cure, or rather assist nature to cure, many of our patients. If before treating them an accurate diagnosis were necessary how many successes would we have? But if vaccines are to have any effect at all their use must be preceded by correct diagnosis. We must be sure that we are treating with the infecting organism. Of course, if the infection be mixed, as is so often the case, we must often be content to treat with a group of organisms—i.e., with a mixed vaccine—being assured that at least one element in our vaccine is specific for the infection, and that the others, if not helpful, are at least harmless.

No greater misconception can exist than the notion that vaccine treatment is incompatible with the use of other methods of treatment. On the contrary, one rarely gets the best results from vaccine treatment unless one makes full use of whatever concomitant measures his own experience or the accumulated experience of others may suggest. Few drugs are in any way inimical to the action of vaccines, and those that are, are depressant to the natural resistive powers of the body, and are therefore contra-indicated in the class of diseases in which vaccines are employed. Of these the only drug in common use is alcohol, the employment of which in septic diseases should by now be obsolete except under rare conditions. Vaccine treatment, therefore, goes side by side with treatment by drugs.

In surgical conditions, operative measures, or anything else that surgical knowledge suggests should, of course, be practised when required. The only precaution to be observed is to withhold inoculations in immediate proximity to any manipulative proceeding which may gives rise to auto-inoculation. Otherwise vaccines, of course, act in their normal manner of increasing the protective power of the body.

I said at the beginning that much misjudgment of vaccine treatment by the profession has been due to the treatment being so largely committed to men unaccustomed to clinical work. It cannot, however, remain in the hands of a special class. As an important branch of therapeutics it must become familiar to every practitioner. No student can be considered to have gained a sufficient knowledge of therapeutics who has not become familiar with both the doctrine of immunity and the practice of immunisation. In this way vaccine treatment will come to take its proper place—not as something peculiar and special, but as an essential part of the treatment of infective disorders of bacterial origin.

Dublin.

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A VARIETY OF

# WAR HEART

## WHICH CALLS FOR TREATMENT BY COMPLETE REST.

By ARCHIBALD E. GARROD, C.M.G., M.D. OXON., F.R.S.,

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TWO chief factors are concerned in bringing about the heart troubles of soldiers. One of these, the physical and emotional strain of military life, has attracted much attention since the war began, and the group of symptoms named by Dr. T. Lewis and his fellow-workers the "effort syndrome" has been treated of by many medical writers. The second factor, the temporary weakening of the heart muscle by campaign diseases, has received much less notice.

Among soldiers of the Mediterranean Forces the effort syndrome has been as much in evidence as on the Western front, but we have also seen very many cases in which malaria and some in which other epidemic diseases, such as dysentery and trench fever, have left the myocardium damaged for a time.

It is the aim of this note to call attention to these cases and to emphasise the fact that treatment by graduated exercises, which has proved so useful in the differentiation and cure of the functional cases, is unsuitable and *does actual harm* in the organic cases, so long as the physical signs of damage to the heart muscle persist

The symptoms described by the patients are shortness of breath on exertion, inability to walk any distance, and, in some cases, præcordial pain. The physical sign is an extension of the cardiac dullness towards the right, often to 1½ or 2 inches beyond the mid-sternal line. Only in extreme cases is there any conspicuous extension towards the left. The dull area has a clearly defined outline, and yields a sense of resistance on percussion. The resistance can also be appreciated by dipping with the pads of the fingers, along the course of the ribs or intercostal spaces. This method of palpation was taught me, years ago, at the Hospital

for Sick Children, by an American friend and pupil, Dr. T. Wood Clark, and I am convinced that, as a means of marking out the cardiac area, it supplies a valuable control to percussion. It is better to mark out the area by palpation first, and to check the findings by percussion.

I am well aware that some physicians, whose opinions are entitled to all respect, deny the possibility of determining the right border of the cardiac area by percussion, let alone by palpation, but this is wholly at variance with my experience. Many of us working in association here (as previously in England) have examined cases and have checked each other's findings, with open eyes and blindfold. We have agreed in our markings, have watched the drawing-in of the area of dullness under treatment, and its re-expansion after renewed strain or relapses of malaria, and are confident of the correctness of our observations. My colleague, Colonel H. H. Tooth, allows me to quote him as endorsing this statement. Murmurs are not often heard in the cases under discussion, and when present are of the functional kinds, so common in s ldiers. The patients are many of them anæmic, but there is no obvious relation between the degree of anæmia and the increase of the cardiac area. Their blood pressure is often above the normal for their ages, as is usual in soldiers who have recently been on active service, and often fluctuates widely with position, emotion, or exercise. The great majority are of the younger military ages.

The signs described are such as my late colleague, Dr. D. B. Lees, taught us to look out for in rheumatic children, in whom the enlargement of the cardiac area, ascribed to myocarditis, often precedes any indication of endocardial lesion.

The X ray shadow of a normal heart extends some way beyond the right border of the sternum, and the right auricle, to which this shadow is mainly due, is covered by the edge of the lung. Extension of the cardiac dullness to the right must indicate a pushing aside of the lung and the bringing of a larger area of the heart's surface into direct contact with the chest wall. My assistant, Major G. Graham, has pointed out that the abnormal dullness is abolished when the patient draws and holds a deep breath. Presumably the dullness results from dilatation of the auricles, especially of the right auricle, and it does not necessarily follow that such dilatation will cause a conspicuous extension of the cardiac shadow. Major Graham is making a series of accurate measurements of the shadows of such hearts and of normal controls. His results, which are as yet incomplete, will be recorded by him in due course.

We have had opportunities of watching the effects of various treatments in these cases of post-malarial dilatation, and in one of our military hospitals wards have been set apart for them under the care of Dr. Prudence Gaffikin. It is to be hoped that she will publish an account of her results later on, and it is only necessary to give a few general conclusions in this note.

Our experience has convinced us that the fitting treatment for such patients is complete rest until the cardiac dullness has returned to its normal limits and for at least a week afterwards. The hearts of many patients which have not responded to modified rest have come in after complete rest has been imposed. The patient is not allowed to rise from his bed for any purpose, nor even to sit up in bed for his meals, nor is he permitted to smoke. We have seen patients who have been treated by exercises *ab initio*, and others who have been allowed up after a short period of rest, although their hearts were still dilated. Neither plan has anything to recommend it, and the results have been wholly unsatisfactory. When the dilatation is recent the cardiac area may return to its normal limits within as short a period as a week. In cases of longer standing, in which rest has not been imposed at the outset, longer periods, up to six or eight weeks, have been required. In no case has the heart failed to come in sooner or later.

In Dr. Gaffikin's wards the patients have begun gentle resistance exercises in bed 10 days after the cardiac dullness has come in. Then follow graduated exercises in the erect posture, and, if all goes well, they are sent to a convalescent camp, where the exercises are continued, under careful medical supervision, in an organised heart clinic.

As a rule, under such treatment, the heart does not re-dilate. If the area of dullness should again spread to the right a further period of rest is imposed. In some cases a relapse of malaria has caused a return of the signs, even during the period of complete rest. A few patients show a great liability to repeated re-dilatations under very slight provocations—a condition for which the apt nickname of "concertina heart" has been coined. Drugs play a comparatively small part in the treatment. Some of us advocate digitalis, and others nux vomica, but I am not convinced of the efficacy of either. Major Graham believes that digitalis lessens the chance of re-dilatation.

To sum up, the "soldier's heart" is not a clinical entity, but includes a variety of morbid states. Even amongst those patients who exhibit what is called the "effort syndrome," some respond well to exercises and others do not, and it is one of the chief claims of the exercises that by their means we are able to sort out the fit from the unfit. Again, as I have tried to show, we meet, in the course of our military work, with cardiac troubles in the treatment of which the most important factor is rest.

Malta.

# AN ANALYSIS OF CASES OF TETANUS TREATED IN HOME MILITARY HOSPITALS

## DURING AUGUST, SEPTEMBER, AND PART OF OCTOBER, 1916.

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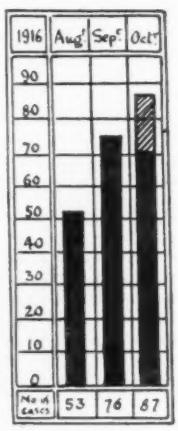
TWO analyses of cases of tetanus treated in home hospitals have been published in THE LANCET—one on Oct. 23rd, 1915, the other on Dec. 2nd, 1916. This paper continues the subject, and gives an analysis of the cases which occurred in August, September, and part of October, 1916. During this time reports on 200 cases have been received; of these, 127 recovered and 73 died—a mortality of 36 5 per cent.

In the first analysis there were 231 cases, with a mortality of 57·7 per cent.; and in the second 195 cases, with a mortality of 49·2 per cent. This shows a regular and satisfactory fall in the rate of mortality, which it is hoped will continue until the 20 per cent. aimed at is attained. This fall is probably due to the introduction of the primary prophylactic injection of antitoxin, and also to the earlier diagnosis and earlier specific treatment of the disease. If the fall continues it will depend on the introduction of multiple prophylactic doses, the vigilance of nursing sisters in detecting early symptoms, and the prompt and thorough treatment by medical officers by means of antitoxin.

It had been intended to give an analysis of cases of tetanus treated in home hospitals at the end of each year of the war. Now it is thought better to give one at more frequent intervals. This is due to the great interest taken in the subject by medical officers in charge of wounded at home. It ought to conduce to the keeping up of this interest if the results of new recommendations made by the Tetanus Committee be reported on at more frequent intervals than one year. In fact, the intention at present is that in future each series of 100 cases as they are completed will be shortly reported on.

DIAGRAM 1.




During the same time two analyses have been published by Colonel Sir William Leishman on the cases of tetanus occurring among the British troops in France. In the first, 179 cases were dealt with, with a case mortality of 78·2 per cent. In the second, in collaboration with Major A. B. Smallman, 160 cases were analysed and gave a case mortality of 72·7 per cent. The cases dealt with in France are naturally more acute and severe than the cases which arise in England.

### THE DISTRIBUTION OF CASES OF TETANUS DURING AUGUST, SEPTEMBER, AND OCTOBER, 1916.

Diagram 1 represents the number of cases which occurred in each month. Sixteen of the cases which occurred at the end of October do not come into this analysis. The diagram

merely gives the number of cases which were treated in home hospitals during each month and has no relation to the number of wounded.

### RELATION OF THE NUMBER OF DAYS WHICH ELAPSED BETWEEN THE DATE OF WOUND AND THE ONSET OF SYMPTOMS AND THE RATE OF MORTALITY.

Diagram 2 shows that in the cases dealt with if the symptoms of tetanus appeared within ten days of receiving the wound the mortality was 42 3 per cent. ; if between the eleventh and twenty-fifth day, 36 9 per cent. ; the remaining 67 cases, with an incubation period of from 26 to 365 days, 25·3 per cent. This shows an all-round improvement.

### THE INCUBATION PERIOD, OR NUMBER OF DAYS WHICH ELAPSE BEWEEN THE DATE OF WOUND AND THE ONSET OF TETANUS SYMPTOMS.

Curve A shows the number of cases which occurred on each day after the date of the wound. The shortest period of incubation was three days and the longest 365. More cases occurred on the ninth, eleventh, and fourteenth days than on any other. There were only 26 cases with a short incubation period—that is, up to 10 days, and 78 cases with an incubation period of more than 22 days. This is very much the same as in the preceding year—27 and 62—which is to be expected since the regulations concerning prophylactic injections were the same in both years. It is the prophylactic injection which governs the incubation period.

It will be interesting to see what effect a second, third, or more prophylactic injections will have on this incubation period. This new recommendation was made by the Tetanus Committee at the beginning of November, 1916. It is sincerely to be hoped that medical officers in charge of wounded will give this new recommendation a fair trial.

### THE POSITION OF THE WOUNDS IN REFERENCE TO THE MORTALITY.

It was noted by Sir William Leishman and Major Smallman that a fatal issue is more common when the body, as distinguished from the limbs, has been wounded. Table I. gives the position of the wounds in the 200 cases under consideration. One case had no perceptible wound.

TABLE I.

| — | Body. | Limbs. |
|---|---|---|
| Fatal, 72 cases ... ... ... ... ... | 23 (31·9 °/₀) | 49 (68·1 °/₀) |
| Recovered, 127 cases ... ... ... ... | 48 (37·8 °/₀) | 79 (62·2 °/₀) |

*Note.*—When wounds occurred both on the body and the limbs the case is counted only under the heading "Body."

From the above table it would appear that wounds involving the limbs are more dangerous than those involving the trunk.

### THE EFFECT OF FRACTURES ON THE RATE OF MORTALITY IN CASES OF TETANUS.

Among the 200 cases under consideration there were 73 fractures—36 per cent. of the whole. Of these, 51 recovered and 22 died ; mortality, 30·1 per cent.

Among the 200 cases there were 127 cases without fracture. 77 recovered, 50 died ; mortality, 39·3 per cent.

### TETANUS OCCURRING AFTER OPERATIVE INTERFERENCE WITH THE WOUND.

Table II. gives the cases, 17 in all, in which tetanus is reported to have followed on an operation. There were 14 recoveries and 3 deaths, a mortality of 17·6 per cent. In not one of these cases was a prophylactic dose of antitoxin reported to have been given at the time of the operation—in spite of the recommendation of the Tetanus Committee in their memorandum of August, 1916.

DIAGRAM 2.

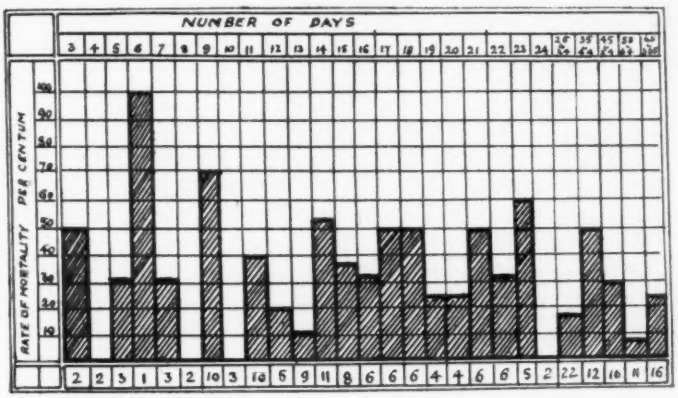


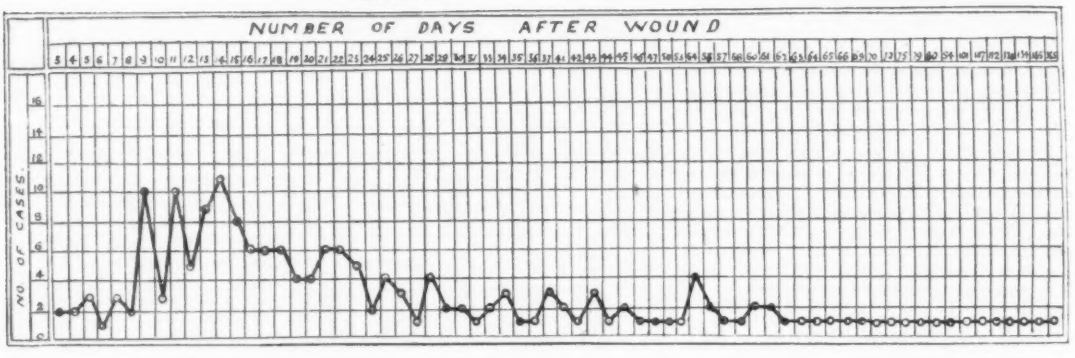

TABLE II.

| No. of case. | Date of wound. | Date of operation. | Date of tetanus. | Days after wound. | Days after operation. | Nature of wound. | Nature of operation. | Recovered. | Died. |
|---|---|---|---|---|---|---|---|---|---|
| | 1916. | 1916. | 1916. | | | | | | |
| 416 | 15-7 | 29-7 | 6-8 | 22 | 8 | R. leg below knee. | Artery ligatured. | R | — |
| 417 | 20-7 | 29-7 | 3-8 | 14 | 5 | L. buttock. | Shrapnel removed. | R | — |
| 447 | 1-7 | 17-8 | 31-8 | 61 | 14 | Shell wound, forearm. | Shell removed. | R | — |
| 456 | 18 7 | 30-7 | 15-8 | 28 | 13 | Shoulder, arm, hand. | Shrapnel removed. | R | — |
| 490 | 18-8 | 18-9 | 30-9 | 43 | 12 | Thigh. | Reamputation. | R | — |
| 505 | 6-5 | 9-10 | 13-10 | 160 | 3 | R. shoulder. | Aneurysm. | — | D |
| 510 | 20-9 | 3-10 | 19-10 | 29 | 16 | L. mastoid and elbow. | Shrapnel removed. | R | — |
| 540 | 27-8 | 19-9 | 20-9 | 24 | 1 | L. calf and foot ; fracture. | Foot opened up. | R | — |
| 543 | 3-10 | 30-10 | 31-10 | 28 | 1 | R. arm, radius, & ulna fractured. | Arm put in new splint. | — | D |
| 555 | 18-8 | 6-9 | 14-9 | 27 | 8 | Back, arms, L. leg, and foot. | Foot opened up. | R | — |
| 566 | 21-8 | 7-9 | 20-9 | 30 | 13 | Shell, both legs. | Reamputation. | R | — |
| 576 | 8-9 | 22 9 | 23-9 | 15 | 1 | L. buttock. | Bullet removed. | R | — |
| 584 | 6 7 | 25-7 | 4-8 | 30 | 10 | R. leg. | Amputation. | R | — |
| 597 | 19-8 | 4-9 | 9-9 | 21 | 5 | L. arm, R. thigh. | Secondary hæmorrhage. | — | D |
| 598 | 25-7 | 17-8 | 20-8 | 26 | 3 | Ribs injured. | Metal removed. | R | — |
| 655 | 28-8 | 18-10 | 21-10 | 54 | 2 | Thigh amputated. | Began to discharge. | R | — |
| 659 | 13-8 | 4-9 | 7-9 | 25 | 3 | L. leg, comp. fract. tibia. | Amputation. | R | — |

TABLE III.

| No. of case. | Date of tetanus. | Date of operation. | Days before operation. | Nature of wound. | Nature of operation. | Recovered. | Died. |
|---|---|---|---|---|---|---|---|
| | 1916. | 1916. | | | | | |
| 439 | 29-8 | 29-8 | 0 | Fract. skull, R. leg, arm, 2 other wounds. | Wounds opened up. | — | D |
| 451 | 29-8 | 29-8 | 0 | Scalp, chest, and arms. | Scalp wound opened up. | R | — |
| 456 | 15-8 | 15-8 | 0 | Shoulder, scapula region, & upper arm. | Shrapnel removed. | R | — |
| 457 | 30-8 | 4-9 | 5 | Comp. fracture humerus. | Dead bone removed. | R | — |
| 460 | 14-9 | 16-9 | 2 | L. thigh and knee. | Metal removed. | — | D |
| 461 | 20-9 | 20-9 | 0 | L. hand and arm, both thighs. | Flint removed ; abscess opened. | R | — |
| 466 | 22-9 | 22-9 | 0 | R. knee, leg, and L. buttock | Knee opened. | — | D |
| 484 | 11-7 | 12-7 | 1 | Both legs and hands. | Soil removed. | R | — |
| 533 | 30-10 | 31-10 | 1 | R. thigh, comp. fracture. | Necrosed sequestrum removed. | R | — |
| 548 | 16-9 | 20-9 | 4 | Arms, legs, and scalp. | Thigh wounds opened up. | R | — |
| 560 | 2-9 | 6-9 | 4 | L. arm, R. thigh and shoulder. | Shrapnel removed. | R | — |
| 622 | 16-10 | 22-10 | 6 | Scalp. | Opened. | R | — |
| 651 | 15-9 | 16-9 | 1 | Face and fracture L. forearm. | Bone removed from arm and jaw. | R | — |
| 742 | 1-8 | 5-8 | 4 | R. arm, shoulder, loin, back, knee, and foot. | Shell and khaki removed. | — | D |
| 753 | 30-9 | 30-9 | 0 | Fractured humerus. | Moved ends of bone. | R | — |

CURVE A.




### ON OPERATIVE INTERFERENCE AFTER TETANUS SYMPTOMS HAVE APPEARED.

Table III. gives the cases, 15 in all, in which an operation was carried out on the wound after the appearance of symptoms of tetanus. There were 11 recoveries and 4 deaths, a mortality of 26 6 per cent. Last year the mortality in such cases was 47·6 per cent. From this year's figures there would appear to be no marked danger in operating after the appearance of tetanic symptoms. Until more evidence has accumulated the advice still holds of waiting until the tetanus has been got under control, and the blood and tissues flooded with antitoxin before undertaking any drastic interference with the wound.

### TREATMENT OF TETANUS BY ANTITETANIC SERUM.

*A. Prophylactic or Preventive Treatment.*

Among the 200 cases, 102 are noted as having received a prophylactic injection of antitoxin in France immediately after being wounded. Only 3 cases are reported to have received prophylactic injections in home hospitals.

Of these 102, 74 recovered and 28 died, giving a mortality of 27·4 per cent. Of the remaining cases, there is no record of prophylactic treatment in 87, although in all probability most of them received it. Of these 87, 48 recovered and 39 died, a mortality of 44·8 per cent. The remaining 11 cases are stated to have had no prophylactic injection of any kind. Of these, 5 recovered and 6 died, a mortality of 54·5 per cent.

In regard to the question as to what influence time has in these primary prophylactic injections, the following table gives all the information available:—

TABLE IV.

| — | Recovered. | Died. | Per cent. |
|---|---|---|---|
| 72 cases inoculated on day of wound | 50 | 22 | 30·5 |
| 18 ,, ,, one day after wound | 15 | 3 | 16·6 |
| 6 ,, ,, two days after wound | 6 | 0 | — |
| 1 case ,, three ,, ,, | 0 | 1 | — |
| 2 cases ,, four ,, ,, | 1 | 1 | — |
| 1 case ,, five ,, ,, | 1 | 0 | — |
| 1 ,, ,, six ,, ,, | 1 | 0 | — |
| 1 ,, ,, seven ,, ,, | 0 | 1 | — |

Of the 72 cases inoculated on day of wound the average incubation period was 29·5 days. Of the 11 cases which received no prophylactic inoculation the average incubation was 15 7 days.

*B. Therapeutic or Curative Treatment.*

Out of the total of 200 cases the number treated with antitetanic serum after the onset of symptoms was 198 (99 per cent.). Two cases did not receive therapeutic treatment with antitetanic serum in England; both died. There is no record that either of these men received a prophylactic injection in France. One of them, Private W. H., showed symptoms of tetanus at 1 P.M. on Sept. 17th, 1916, and died at 8.40 A.M. on Sept. 19th. The other, Private L. K., showed symptoms on Sept. 25th, 1916, and died four days later. No reason is given in either case why specific treatment was not used. Of the 198 cases which received serum treatment 127 recovered and 71 died. Mortality, 35·8 per cent.

### ON THE INFLUENCE OF ROUTE IN THE INJECTION OF ANTITETANIC SERUM.

Of the 198 cases— Per cent.

25 were treated by subcutaneous injections alone: 17 recovered, 8 died. Mortality ... ... ... ... ... ... ... ... 32·0

13 were treated by intramuscular injections alone: 12 recovered, 1 died. Mortality ... ... ... ... ... ... ... ... 7·7

5 were treated by intravenous injections alone: 4 recovered, 1 died. Mortality ... ... ... ... ... ... ... ... ... ... 20·0

17 were treated by intrathecal injections alone: 10 recovered, 7 died. Mortality ... ... ... ... ... ... ... ... ... ... 41·2

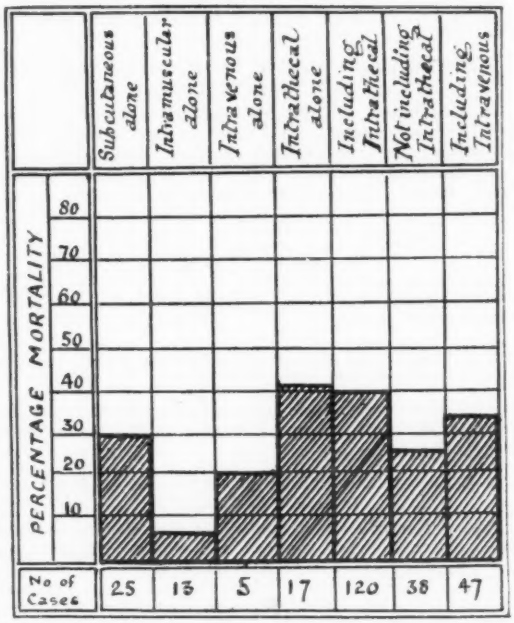
There were 120 cases which included intrathecal injections: 72 recovered, 48 died. Mortality ... ... ... ... ... ... ... ... 40·0

There were 38 cases which did not receive intrathecal injections: 28 recovered, 10 died. Mortality ... ... ... ... ... 26·3

There were 47 cases which included intravenous injection: 31 recovered, 16 died. Mortality ... ... ... ... ... ... ... 34·0

It would appear from Diagram 3, which represents this graphically, that no advantage in favour of intrathecal injections emerges from these figures, as seemed to be the case in 1915.

DIAGRAM 3.




### IS THERE ANY OTHER EVIDENCE TO BE FOUND IN THESE REPORTS THAT THE INTRATHECAL ROUTE HAS ANY ADVANTAGE OVER THE OTHER METHODS OF INJECTION?

*Treatment Beginning on Day of Onset of the Disease.*

Per cent.

During the period August-October, 1916, 96 cases were treated with antitetanic serum on the day the symptoms declared themselves. 54 recovered, 42 died. Mortality ... ... ... ... 43·7

Out of the 96 cases the following received antitoxin, but not intrathecally, on the day of the disease: 43 cases; 26 recovered. 17 died. Mortality... ... ... ... ... ... ... ... 39·5

Out of the 96 cases the following received antitoxin intrathecally on the day of onset of the disease: 53 cases; 28 recovered, 25 died. Mortality ... ... ... ... ... ... ... 47·1

*Treatment Beginning on the Day following the Onset of Disease.*

During this period 38 cases were treated with antitetanic serum beginning one day after the symptoms had declared themselves. 27 recovered, 11 died. Mortality ... ... ... ... ... 28·9

Out of the 38 cases the following received antitoxin, but not intrathecally, one day after the onset of the disease: 23 cases; 17 recovered, 6 died. Mortality... ... ... ... ... ... ... ... 26·0

Out of the 38 cases the following received antitoxin intrathecally one day after the onset of the disease: 15 cases; 10 recovered, 5 died. Mortality ... ... ... ... ... ... ... 33·3

*Treatment Beginning Two Days after the Onset of the Disease.*

During this period 27 cases were treated with antitetanic serum beginning two days after the symptoms had declared themselves; 18 recovered, 9 died. Mortality... ... ... ... ... ... 33·3

Out of the 27 cases the following received antitoxin, but not intrathecally, two days after the onset of the disease: 10 cases; 7 recovered, 3 died. Mortality ... ... ... ... ... ... ... 30·0

Out of the 27 cases the following received antitoxin intrathecally two days after the onset of the disease: 17 cases; 11 recovered, 6 died. Mortality... ... ... ... ... ... ... 35·3

*Treatment Beginning Three to Twelve Days after the Onset of the Disease.*

During the same period 36 cases were treated with antitetanic serum beginning three to twelve days after the symptoms had declared themselves. 25 recovered, 11 died. Mortality 30·5

Out of the 36 cases the following received antitoxin, but not intrathecally, three to twelve days after the onset of the disease: 10 cases; 6 recovered, 4 died. Mortality ... ... ... 40·0

Out of the 36 cases the following received antitoxin intrathecally three to twelve days after the onset of the disease: 26 cases; 19 recovered, 7 died. Mortality ... ... ... ... ... 26·9

Last year (1915–16) the difference was in favour of the intrathecal route. Now the opposite is true. From these figures it would appear that it is better to defer treatment until the symptoms have been manifest for one or more days. *Quod est absurdum.*

## THE INFLUENCE OF DOSAGE ON THE CURATIVE ACTION OF ANTITETANIC SERUM.

*(a) The Total Quantity of Antitoxin Given During the Attack.*

| Out of the 198 cases— | | | | | | Per cent. |
|---|---|---|---|---|---|---|
| 3 received 1000 units or under: | | | 2 recovered, | 1 died. | Mortality | 33·3 |
| 32 ,, 1,001 to 5,000 units: | | | 16 ,, | 16 ,, | ,, | 50·0 |
| 25 ,, 5,001 ,, 10,000 ,, | | | 14 ,, | 11 ,, | ,, | 44·0 |
| 24 ,, 10,001 ,, 15,000 ,, | | | 15 ,, | 9 ,, | ,, | 37·5 |
| 20 ,, 15,001 ,, 20,000 ,, | | | 11 ,, | 9 ,, | ,, | 45·0 |
| 27 ,, 20,001 ,, 30,000 ,, | | | 18 ,, | 9 ,, | ,, | 33·3 |
| 10 ,, 30,001 ,, 40,000 ,, | | | 5 ,, | 5 ,, | ,, | 50·0 |
| 31 ,, 40,001 ,, 60,000 ,, | | | 24 ,, | 7 ,, | ,, | 22·5 |
| 21 ,, 60,001 ,, 100,000 ,, | | | 18 ,, | 3 ,, | ,, | 14·3 |
| 5 ,, 100,001 ,, 481,000 ,, | | | 4 ,, | 1 ,, | ,, | 20·0 |

*(b) The Daily Quantity of Antitoxin Given.*

| Out of the 198 cases— | | | | | Per cent. |
|---|---|---|---|---|---|
| 6 received 100 units or under: | 5 recovered, | 1 died. | Mortality | | 16·6 |
| 103 ,, 1001 to 5000 units: 67 | ,, 36 | ,, | ,, | | 35·0 |
| 47 ,, 5001 ,, 10,000 ,, : 33 | ,, 14 | ,, | ,, | | 29·8 |
| 19 ,, 10,001 ,, 15,000 ,, : 10 | ,, 9 | ,, | ,, | | 47·0 |
| 9 ,, 15,001 ,, 20,000 ,, : 4 | ,, 5 | ,, | ,, | | 55·5 |
| 8 ,, 20,001 ,, 30,000 ,, : 5 | ,, 3 | ,, | ,, | | 37·0 |
| 4 ,, 30,001 ,, 40,000 ,, : 2 | ,, 2 | ,, | ,, | | 50·0 |
| 2 ,, 40,001 or more ,, : 1 | ,, 1 | ,, | ,, | | 50·0 |

From these figures relating to dosage no useful deduction can be made. The only excuse for including them is to enable a comparison to be made, with the amount of serum given in the period August, September, and October, 1916, with that given in 1914–15 and 1915–16.

*Remarks on the Therapeutic Value of Tetanus Antitoxin.*

This section on the prophylactic and therapeutic action of antitoxin may be concluded with the following criticism. To begin with it is quite evident that no advance in our knowledge of the curative value of tetanus antitoxin can be made from these new figures.

In the two previous analyses it was stated "the main conclusion to be drawn from a study of these cases of tetanus treated therapeutically by antitetanic serum is that it seems highly probable that the serum has little or no effect on the course of the disease." This, of course, must be understood to be merely an opinion formed from the study of these particular figures. It is not the expression of an opinion as to the usefulness or not of antitetanic serum as a therapeutic agent. It merely means that no evidence can be gained from these reports in favour of the curative power of this antitoxin. This is not to be wondered at. The number of cases analysed is small. There are only two controls. The greatest variety in mode of treatment exists. The men are suffering from wounds, septic poisoning, and other diseases in addition to tetanus. The cause of death is credited to tetanus, but in many cases wrongly so. For example, among the 73 deaths in the 200 cases under consideration, 14 at least were primarily due to gas gangrene, septicæmia, heart failure, or pneumonia. Under these circumstances it is not surprising that no conclusive evidence can be gained. The difficulty of arriving at truth in human therapeutics is notorious. It would certainly be very satisfactory, and ample reward for work expended, if the real value of antitetanic serum in the treatment of tetanus could be definitely laid down.

Millions of cubic centimetres of antitetanic serum have been used since the war began. If it could be proved to be of no use it would mean a great lessening of pain and inconvenience to the men suffering from tetanus, and economy to the State.

If it were possible and legitimate to stop all treatment of tetanus in the army by antitetanic serum for six months or a year some valuable information might doubtless be obtained. But this is not practicable since the consensus of opinion of medical officers in this country is decidedly in favour of this specific treatment. The only thing to do, then, is to redouble the efforts to make the therapeutic application of the serum as thorough as possible. This can best be done, according to the Tetanus Committee, by the recognition of early symptoms and the thorough application of the antitoxin without any loss of time by the intrathecal route.

It must be clearly understood that these remarks only refer to the therapeutic or curative use of antitoxin. The enormous value of antitetanic serum as a prophylactic is firmly established beyond any shadow of doubt. It is to be sincerely hoped that there will be no slackening in its use as a prophylactic, and that medical officers in charge of wounded in home hospitals will give the recommendations of the Tetanus Committee in regard to the repetition of these prophylactic doses a thorough trial.

## OTHER THERAPEUTIC REMEDIES.

1. *Carbolic acid injections.*—During August, September, and October, 1916, there were only 2 cases treated with this drug, 1 recovered, 1 died. Case 410 is reported to have had ♏10 of a 2 per cent. solution, but how often or how long is not stated. Recovered. Case 444, 2 c.c. of a 4 per cent. solution every two hours for three days. Died.

2. *Magnesium sulphate.*—Only one case was treated. Case 486. Intrathecal injections of ♏40 of 25 per cent. solution daily under nitrous oxide anæsthesia. Died.

## CONCLUSIONS.

1. In the 200 cases of tetanus under review the mortality was 36·5 per cent.

2. The greatest number of cases occurred between the ninth and the fourteenth days.

3. Only 3 cases are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals.

4. In regard to the therapeutic effect of the serum the evidence as collected from the August, September, and October, 1916, reports is not conclusive.

5. The summary given in the last analysis in regard to treatment may be repeated.

(*a*) Place in a quiet, darkened room under the care of a sympathetic and capable nurse. "Rest, sleep, and food" are looked upon as the first essentials of treatment.

(*b*) If thorough surgical treatment is carried out on wounds from the beginning so as not to allow the presence of necrotic tissues or foreign bodies, the number of cases of tetanus should sensibly diminish, if not altogether disappear. But if a case does occur then the wound should not be actively interfered with until the tetanic symptoms have subsided.

(*c*) The intrathecal injection of large doses of antitoxin, of high potency if available, should be begun at once and supplemented by intramuscular and subcutaneous injections.

(*d*) In addition, if necessary, the patient should receive sedatives, of which morphia in ¼-grain doses and administered every four hours is perhaps the most suitable. Chloral, chloretone, and other sedatives may also be given by the mouth or rectum.

THE

# DETECTION OF *ENTAMŒBA HISTOLYTICA* AND ITS CYSTS:

## NOTES ON THE TECHNIQUE FOR CONDUCTING EXAMINATIONS OF HUMAN FÆCES.

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*(A Report to the Medical Research Committee from the Laboratory, Mont Dore Military Hospital, Bournemouth.)*

IT cannot be denied that attention to detail is the secret of success in laboratory technique. Of no examination is this more true than of the examination of fæces for the detection of *Entamœba histolytica* and its cysts.

Many laboratory workers, bacteriologists and biologists, have of late had to conduct such examinations, though previously they may have had little or even no experience of searching for cysts in fæces. The remarks which follow are not made with the object of instructing such workers how to recognise the *Entamœba histolytica* and its cysts, or in the differential diagnosis between this amœba and other protozoa and yeasts. Such instructions should come, and are urgently required, from expert protozoologists. Rather do they aim at drawing the attention of inexperienced workers to certain details in technique which, in my opinion, will go far towards facilitating their work, and the neglect of which will not only render their work more difficult, but so difficult that even an expert working under similar conditions would be unable to express a confident opinion.

### *The Microscope: Illumination and Magnification.*

1. *The lighting of the microscope.*—The examinations may be made by sunlight or by artificial light. It may be said, however, that one or other of these sources of light should be selected and adhered to; for it is advisable to make all examinations under as nearly similar conditions as possible. For this reason it is best to use artificial light under all circumstances. When available electricity should be preferred to incandescent gas, and the latter to oil. A film should never be examined until the lighting system is satisfactory. Even an expert cannot express an opinion on a cyst if the field of a microscope is faultily illuminated. The source of light should be so arranged that light only enters the eye through the microscope. With this object in view a piece of black paper may be spread under the microscope and the source of light may with advantage be enclosed in a light-tight cardboard or metal shade with a round hole two inches in diameter for the exit of the beam of light on to the mirror of the microscope. My fellow-worker, Mr. D. G. Lillie, places a Crookes's glass over the hole and finds that it softens the light and saves the eye from light fatigue, even after many hours of microscope work.

When electricity is available any powerful electric lamp will do so long as the glass is "frosted." A very serviceable light is the Royal Ediswan Downlite of 50 candle-power, fitted with small opal shades to throw the light well forward. Another lamp to which attention may be drawn is the American Lyhne reading-lamp. It is the most useful laboratory lamp I know of. Not only does it make a very good microscope lamp, but it is eminently suitable for illuminating the laboratory bench when daylight fades, and it forms an ideal light for "reading" agglutination tubes, &c. I obtained mine without difficulty through the General Electric Company, London.

2. *The microscope.*—Any of the good makes of microscopes such as are commonly in use in bacteriological and biological laboratories will serve. There are, however, in addition to good lenses two essentials. Firstly, an Abbe condenser is indispensable for obtaining satisfactory definition when the light is shut off by closing the diaphragm. The latter must be closed sufficiently to render every particle in the preparation clearly visible. Secondly, a mechanical stage is necessary, for the whole preparation must be examined systematically from beginning to end. With this precaution small infections are less likely to be missed, whilst they are sure to be overlooked if the preparation is examined at random.

3. *The magnification.*—Three magnifications—that is, three combinations of objective and ocular lenses—are advisable.

(*a*) The search for amœbæ or cysts should be made in the first instance with a low power. For the little experienced I consider the combination of a $\frac{2}{3}$ inch objective with a ×12 compensated ocular, giving a magnification ×192, to be the best. In this way a large field is obtained—an advantage when working slowly—and the cysts are sufficiently magnified to make their recognition a certainty.

(*b*) When an amœba or a cyst is detected a $\frac{1}{6}$ inch objective and ×6 ocular should be used. With this magnification (×390) a decision as to the nature of the amœba or cyst can be made in most cases. With a little practice the ×12 compensated eye-piece can be used advantageously with the $\frac{1}{6}$ inch objective. A high magnification is thus obtained; the lighting can be adjusted by means of the diaphragm.

(*c*) In doubtful cases, when scrutiny of the nucleus can alone decide on the nature of a cyst, an oil-immersion $\frac{1}{12}$ inch objective and a ×6 ocular (magnification ×750) should be employed.

A micrometer scale is essential for the accurate measurement of the size of cells or cysts.

### *The Preparation of Fæces.*

The preparation consists of a suspension of fæcal matter in a conveniently sized drop of liquid on a slide covered with a cover-slip. The suspension should be made with care so as to avoid the retention of all coarse particles. This and the regulation of the thickness of the preparation are facilitated by the use of a dark background. The suspension should be of such thickness that, when covered with a cover-slip, no difficulty is experienced in focussing each individual particle with a magnification of × 390. When investigating a case of dysentery with active symptoms—that is, when blood and mucus are being passed—it is advisable to select carefully small pieces of mucus for examination. Further, such specimens should be examined first in any given batch of fæces, for the diagnosis is facilitated if the movements of the free amœbæ can be studied. As a rule such movements persist when the amœbæ are kept at room temperature, even during the winter months, for at least three to four hours. After this interval they gradually become less and less evident. In the investigation of carriers the cysts are distributed more or less evenly through the fæces, and the portion for examination may be selected at random.

The following fluids may be used for the preparation of the suspension of fæces.

(*a*) Examination in physiological salt solution. This is the accepted fluid medium for the examination for *Entamœba histolytica* and its cysts, and everyone should familiarise himself with the appearance of the various amœbæ and cysts in this solution.

(*b*) Examination in a coloured preparation. (Author's method.) This is an attempt to obtain a coloured preparation in which distinctive colouration is given to those elements demanding special scrutiny, whilst food débris, &c., are coloured with a contrast stain. At the same time, the amœbæ and their cysts retain their characteristic appearance as seen in salt solution. So far it has not been found possible to stain cysts satisfactorily in wet preparations, although, as will be seen later, iodine brings certain features of the cysts into prominence. The method here described depends on the fact that colour can be imparted to the highly refractile cysts by passing the illuminating rays of light through a coloured fluid. The food débris, &c., are actually stained with a contrast stain.

The beam of light from the microscope lamp is passed through a flask of 500 c.c. capacity filled with distilled water to which is added one drop (0·05 c.c.) of a 1 per cent. aqueous solution of methylene blue. The food débris, bacteria, &c., are stained by making the suspension of fæces in a drop of Czaplewski's fuchsin.

Fuchsin 1 gm. carefully dissolved in 5 c.c. of liquid carbolic acid. To this are added 50 c.c. glycerine and 100 c.c. distilled water. For use, take 1 part of the stain to 12 parts distilled water.

On examining such a preparation magnified 192 times the cysts are readily seen as circular highly refractile bluish-white bodies lying among the red-stain débris. Under the $\frac{1}{6}$ inch objective the *Entamœba histolytica* cysts appear pale blue and, when present, the chromatoid bodies stand out as bright Cambridge-blue bands. The blue cysts are in marked contrast to the red particles of food débris, &c. A further advantage of the method consists in the fact that degenerate cysts become coloured by the stain, due, no doubt, to their being less resistant to the penetration of the stain. It is not claimed that the method facilitates the differential diagnosis between the pathogenic and non-pathogenic cysts, for such depends on many factors not connected with colour. The *Entamœba coli* cysts, however, assume a greyish tint and are very rarely so blue as those of *Entamœba histolytica*. Unquestionably the finding of cysts is rendered more easy in a coloured preparation, and it is for this fact and for the reason that it has been favourably received by my fellow-workers, who are eminently qualified to judge, that I venture to give publicity to the method.

(*c*) Examination in iodine-glycerine solution. (Author's modification.) The suspension is made in a drop of the following solution: Iodine 1 gm., pot. iod. 2 gm., aq. dest. 200 c.c. Add glycerine in the proportion of 1 drop to every 10 c.c. of the solution. Examination in iodine should only be used as a confirmatory test. The glycerine is added to overcome the difficulty that the iodine solution alone

agglutinates the fæces and renders the finding of cysts more difficult, and the number of cysts in any given sample of fæces appears to be actually reduced. By the addition of the glycerine this disadvantage is largely overcome. The advantage of this method as a confirmatory test is two-fold. Firstly, the nuclei of the cysts are rendered more plainly visible and the outline of the vacuoles is defined. Secondly, certain bodies which otherwise might be confused with pathogenic cysts are clearly differentiated by the stain. Yeasts, for instance, are untouched by the solution, whilst the so-called iodine bodies are stained in so characteristic a manner that they are easily recognised.

In my opinion the examination of stools for pathogenic cysts in all its phases is work for specially trained experts, and can hardly be mastered without a period of practical study under tuition. The experience of the past six months, however, has clearly demonstrated that cases of amœbic carriers are being missed because many of the laboratory workers, engaged in investigating such cases, are unable to recognise the cysts even in their most typical form. It is with the hope that it may prove useful to these workers that this article has been written.

If doubtful cysts are found in the salt solution or coloured preparation another sample of the fæces should be examined in iodine as a routine measure. Many mistakes will thus be avoided. Finally, all who undertake this very important work will do well to bear in mind this golden rule. Never express an opinion on a cyst unless you are satisfied that you have diagnosed it correctly. There will be other cysts about which you will be certain in other parts of the same preparation or in other parts of the same sample of fæces or in other samples of fæces from the same patient. It is worth while waiting for an accurate diagnosis. A hurried, faulty diagnosis can only mislead and may lead to disaster.

## THE TREATMENT OF "TRENCH RHEUMATISM" AND ALLIED CONDITIONS BY COLLOIDAL SULPHUR.

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As a result of prolonged exposure to adverse weather conditions, and especially the extremely unfavourable state of cold and dampness which prevails during the winter months in the trenches, many men suffer from a painful and disabling condition of the muscles. This affects especially the parts which are chiefly exposed to damp—viz., the back and legs, and for want of a better name is popularly designated "trench rheumatism." As a rule the pathological process in these cases appears to be a myositis, which, if aggravated and prolonged, results in a fibrositis with permanent stiffness and deformity. Occasionally the condition is one of arthritis, especially of the knees and ankles; or both conditions are combined. A similar condition occurs among the men, usually of an elderly type, engaged on guard duties in exposed localities at home, but in these men the condition, having as a rule been recurrent for a considerable time, is apt to be more intractable.

Salicylates have had in my experience little effect in relieving the pain and stiffness, which are often considerable, and an attempt was made to introduce into the system sulphur in an easily assimilable form. The remedial action of many well-known anti-rheumatic waters depends upon the presence of this substance, its benefit in painful muscular conditions having long been widely known. Thus, Pliny recommends its application in ointment for lumbago,[1] and also extols the benefit of hot sulphur baths.[2] Paracelsus at the Renaissance appears to have rediscovered its merits, and eulogises it in high terms as "a preservative in all fevers." Since his time sulphur has maintained its high place in popular estimation as a cure for rheumatism, though the only method of introducing it into the body has been to administer the flowers of sulphur by the mouth. One of the most celebrated preparations for this purpose was the "Chelsea Pensioner," a name which indicates the prevalence of myalgia among the discharged soldiers of bygone wars.

[1] Nat. Hist., Book XXXV., Ch. 50.
[2] Ibid., Book XXXI., Ch. 32.

*Colloidal Sulphur: Mode of Preparation and Dosage.*

I was induced by the success which had attended the treatment of acute articular rheumatism by a form of colloidal sulphur in the hands of French observers[3] to try the intramuscular injection of colloidal sulphur in the severer cases of trench rheumatism which came into the wards under my charge. This preparation of colloidal sulphur has the double advantage that it is introduced into the affected muscles in a nascent state and in a form of extremely minute subdivision which offers a large surface for the action of the body fluids. The fineness of the particles may be judged from the fact that whereas the grains of the almost impalpable precipitated sulphur (milk of sulphur) have a diameter of 0·005 mm. or more, the granules of the colloidal sulphur vary from 0·0001 mm. or smaller up to 0·001 at most. The surface presented for absorption by the colloidal sulphur is therefore about 50 times that offered by an equal weight of the precipitated sulphur. The preparation used was made up for me by Mr. George Lunan, Queensferry-street, Edinburgh, who has kindly supplied the following note as to its production:—

"The process used in the manufacture of colloidal sulphur, 1 in 1000, is as follows: Hydrochloric acid (10 per cent. HCl), 22 mils.; sodium sulphide ($Na_2S$, 9 $H_2O$), 5 gm.; sodium sulphite ($Na_2SO_3$, 7 $H_2O$), 2·6 gm.; white of two eggs; sterilised water to 1 litre. Dissolve the sodium sulphide and sulphite each separately in 250 mils. of the water, mix together; add the white of egg and thoroughly mix. To this solution add the hydrochloric acid, diluted with 250 mils. of the water. The solution is then to be thoroughly mixed, warmed slightly, and sufficient sterile water added to make the volume 1 litre. The solution, after being carefully dialysed to remove crystalloids, is then ready for use. Theoretically, the product should contain 1 in 1000 of colloidal sulphur. The chemical action is explained as follows:—

$$2\,Na_2S + 4\,HCl = 2\,H_2S + 4\,NaCl, \text{ and}$$
$$Na_2SO_3 + 2\,H_2S + 2\,HCl = 2\,NaCl + 3\,S + 3\,H_2O.$$

Thus the sodium sulphite is reduced by the hydrogen sulphide produced from the sodium sulphide and hydrochloric acid. The presence of the albumin appears to prevent the aggregation of the sulphur into masses. In use the dose of 1 mil. is rendered isotonic by the addition of 2 decimils of 5·5 per cent. saline solution mixed immediately before injecting."

The dose with which I have been in the habit of commencing is 1 mil. (i.e., about 17 minims of the colloidal sulphur solution made up to 20 minims with the saline solution) injected into the painful area of muscle. If no reaction results, the dose may subsequently be doubled, the point of injection being slightly varied each time. In a course of 10 injections the affected muscle receives into its substance approximately 1/50 gm., or 1/3 gr., of nascent sulphur which is gradually absorbed.

*Results of Treatment.*

The following two tables show the effects of treatment in 60 cases. Severe cases only or cases of prolonged duration were chosen for these initial trials, but a large number of other severe and also slighter cases among soldiers and civilians have since been treated with equally satisfactory results.

The 60 cases here recorded include 24 expeditionary and 36 non-expeditionary men. In the majority of these the pain evidently originated in the muscles of the back or legs, there being 18 cases of myalgia among the expeditionary and 21 among the non-expeditionary cases. In 4 and 8 of the cases respectively the condition was of arthritic nature; and in the remaining 2 and 7 cases respectively the pain was quite definitely referable to the sciatic nerve, commonly the right nerve.

As regards duration, the pains were referred in almost every expeditionary case to repeated wettings in flooded trenches and had lasted several months, usually six to seven months, before admission to hospital. In the non-expeditionary cases the cause and duration were more varied, but some form of exposure was usually blamed. Some cases among the latter were chronic or recurrent for several years, and naturally these proved highly refractory to any form of treatment.

[3] Le Progrès Médical, August, 1915.

From the standpoint of result the 24 expeditionary cases showed in 14 complete cure, this result being attained after an average treatment of five weeks' duration; 7 of the cases were much improved; while 3 were ultimately discharged as medically unfit (d.m.u.) for further service, 2 of these for conditions other than the myalgia. Of the 36 non-expeditionary cases 17 were completely cured after an average treatment lasting three weeks; 12 cases were much improved; and 7 were discharged (5 of these for valvular disease of the heart). One-half of all the cases were thus completely cured, and

TABLE I.—*Expeditionary Cases.*

| Case. | Disease. | Length of illness. | Treatment. | Result. |
|---|---|---|---|---|
| 1 | General myalgia. | 6 months. | 8 injns. 16-3-16 to 30-3-16. | Completely cured in July, 1916. |
| 3 | Subacute arthritis. | Several months. Treated without improvement at Bath. On crutches. Also malaria. | 28 injns. 23-9-15 to 4-11-15; massage. | Walking well without crutches 26-10-15. |
| 4 | Arthritis of knee and myalgia with much bending of back. | 5 months. | 20 injns. 25-10-15 to 13-12-15; soda baths and massage. | Walking smartly and no pain 3-12-15. |
| 6 | Sciatica and previous lead poisoning. | Recurrent for 3 years. | 6 injns. 22-10-15 to 4-11-15. | Quite well 11-11-15 (blue line on gums). |
| 7 | Myalgia of back. | 10 months. | 6 injns. 22-10-15 to 4-11-15. | Quite free from pains, though legs still weak 8-11-15. |
| 11 | ,, | 5 ,, | 2 injns. 29-10-15 to 2-11-15. | Pains gone, though still debilitated 23-11-15. |
| 12 | ,, | 5 ,, | 2 injns. 4-11-15 to 7-11-15. | Quite well and returned to duty 15-11-15. |
| 14 | ,, | 2 ,, | 2 injns. 31-10-15 to 3-11-15. | Very much better 9-11-15. |
| 15 | Mild arthritis in knees and feet. | 7 ,, | 2 injns. 31-10-15 to 2 11-15. | Pains and swelling completely gone 9-11-15. |
| 18 | Myalgia in legs. | 6 ,, | 4 injns. 9-11-15 to 16-11-15. | Quite cured 23-11-15. |
| 22 | Myalgia in back. | 4 ,, | 4 injns. 29-11-15 to 5-12-15. 14 injns. 14-1-16 to 29-2-16. | Almost well and sent to convalescent home 15-12-15. Readmitted worse 14-1-16 and quite cured 11-3-16. |
| 29 | Myalgia in back and legs. | Over 3 months. | 14 injns. 17-1-16 to 27-2-16. | Very greatly improved. Later d.m.u. for neurasthenia. |
| 34 | Myalgia. | Several weeks. | 7 injns. 18-2-16 to 1-3-16. Sod. salicyl. brought down temp. but did not relieve pain. | Returned to duty cured 10-3-16. |
| 36 | Myalgia in legs. | Several months. | 12 injns. 17-1-16 to 24-2-16; massage. | Returned to duty cured 11-3-16. |
| 40 | Subacute rheumatism. | 8 months. | Sod. salicyl. 14 days without any effect; then 6 injns. 14-2-16 to 29-2-16; massage. | Pains relieved. Later d.m.u. for neurasthenia. |
| 41 | Myalgia. | 4 ,, | 5 injns. 4-3-16 to 12-3-16. | Returned to duty cured 16-3-16. |
| 43 | ,, | 2 ,, | 5 injns. 12-3-16 to 20-3-16. | Cured 25-3-16. |
| 47 | Sciatica and subacute rheumatism. | Recurrent for 9 months. Admitted helpless on stretcher. | 10 injns. 15-4-16 to 20-5-16; button cautery. | Pains gone; walking with very slight limp 1-6-16. |
| 52 | Myalgia in back. | Several months. | 10 injns. 8-5-16 to 26 5-16. Soda baths; faradism. | Pains gone and only slight stiffness left 21-6-16. |
| 56 | Myalgia in legs. | 2 ,, | 10 injns. 16-7-16 to 3-8-16; massage. | Returned to duty cured 24-8-16. |
| 59 | Myalgia in back and legs. | Several ,, | 10 injns. 15-8-16 to 4-9-16; massage. | Very greatly improved 4-9-16. |
| 62 | Myalgia, back, legs, and shoulders. | 8 ,, | 10 injns. 13-8-16 to 31-8-16. | Cured 30-9-16. |
| 63 | Myalgia of back. | 9 ,, | 9 injns. 15-8-16 to 31-8-16. | Very much improved 4-9-16. |
| 65 | ,, | 7 ,, | 5 injns. 23-8-16 to 31-8-16. 10 injns. 20-11-16 to 8-12-16. | Previously treated at Buxton 7 weeks without improvement. Free from pain and much less stiff 28-12-16. |

D.m.u. = Discharged medically unfit.
V.d.h. = Valvular disease of heart.

TABLE II.—*Non-Expeditionary Cases.*

| Case. | Disease. | Duration before treatment. | Treatment. | Result. |
|---|---|---|---|---|
| 2 | Myalgia in back and legs. | Recent. | 9 injns. 6-2-16 to 22 2-16. | Quite cured by 3-3-16. |
| 5 | Recurrent myalgia of back. | 20 years. Present attack 3 weeks. | 8 injns. 21-10-15 to 4-11-15. | Pain quite gone and returned to duty 10-11-15. |
| 8 | Subacute arthritis. | Over 1 year. | 5 injns. 2-10-15 to 2-11-15. | Pain relieved, but ultimately d.m.u. for myocarditis. |
| 9 | Acute sciatica. | 5 days. | 2 injns. 28-10-15 to 30-10-15. | Greatly relieved, later quite well. |
| 10 | Subacute arthritis. | 2 weeks. | 3 injns. 29-10-15 to 2-11-15* | Almost quite well 28-12-15. |
| 13 | Sciatica r. and myalgia. | Recurrent for 10 months. | 5 injns. 7-11-15 to 16-11-15. | Pain gone 23-11-15. Seen again and quite cured 8-4-16. |
| 16 | Myalgia in legs and back. | 2 months. | 3 injns. 11-11-15 to 16-11-15. | Pains almost gone 16-11-15. |
| 17 | Sciatica r., severe. | 2 ,, | 6 injns. 13-11-15 to 9-12-15; massage. | Almost cured. Seen again 5-2-16 and has been quite well. |
| 20 | Acute rheumatism. | 1 week. | 5 injns. 3-12-15 to 11-12-15. Also salicylate of soda. | Joints free by 12-1-16. Later d.m.u. for endocarditis. |
| 21 | Myalgia of back. | 10 weeks. | 2 injns. 3-12-15 to 5-12 15. Also soda baths. | Cured 27-12-15. |
| 23 | Subacute arthritis in hips and knee. | Recurrent, 6 months. | 4 injns. 29-11-15 to 5-12-15. | Almost quite well. |
| 24 | Acute arthritis in wrists and foot. | 1 week. | 9 injns. 19-11-15 to 5-12-15. | Almost quite well, 5-1-16. |
| 25 | Myalgia. | 6 months. | 10 injns. 29-11-15 to 17-12-15. | Very much improved. |
| 26 | Myalgia of back and legs. | 5 weeks. | 7 injns. 17-1-16 to 29-1-16. | Transferred, somewhat improved, and later fit for duty. |
| 27 | Sciatica. | 3 months (previously treated for gonorrhœal arthritis). | 12 injns. 2-1-16 to 25-1-16; massage. | Very much better. |
| 28 | Myalgia, back and legs. | 3 months. | 9 injns. 14-1-16 to 29-1-16; massage. | Pains relieved. Later d.m.u. for myocarditis from 2 attacks of rheumatic fever. |
| 30 | Myalgia in back and legs. | 3 weeks. | 5 injns. 20-2-16 to 28-2-16. | Cured 2-3-16. |
| 31 | Myalgia in back. | Recent. | 7 injns. 14-2-16 to 26-2-16. | ,, ,, |
| 32 | Myalgia. | Several years. | 5 injns. 1-12-16 to 9-12-16. | Pains relieved. Later d.m.u. for v.d.h. |
| 33 | Myalgia in back. | Treated for gonorrhœa 4 weeks previously. | 3 injns. 25-2-16 to 29-2-16. | Cured 4-3-16. |
| 35 | Myalgia. | Some weeks. | 9 injns. 27-1-16 to 25-2-16; massage. | Almost quite well. |
| 37 | Subacute rheumatism. | Some months. | 11 injns. 14-2-16 to 10-3-16. | Pains relieved 10-3-16. Later d.m.u. for v.d.h. |
| 38 | Sciatica r. | Several weeks. | 4 injns. 12-3-16 to 18-3-16. 10 injns. 7-6-16 to 27-6-16. | Very much improved 5-4-16. Recurred and again greatly improved. Finally d.m.u. for gastritis. |
| 42 | Pleurodynia. | Recurrent 7 months. | 4 injns. 14 3-16 to 20-3-16. | Cured 22-3-16. |
| 44 | Sciatica. | 7 weeks alcoholic gastritis 3 weeks. | 8 injns. 10-3-16 to 26 3-16. | Pain gone, still slightly stiff 26-3-16. |
| 45 | Myalgia in legs. | | 3 injns. 22-3-16 to 26-3-16. | Cured 8-4-16. |
| 46 | Myalgia in thighs. | 5 ,, | 8 injns. 22-3-16 to 23-4-16. | Cured 29-4-16. |
| 48 | Myalgia in legs. | 3 ,, | 4 injns. 28-4-16 to 4-5-16. | Cured 5-5-16. |
| 49 | Sciatic r. severe. | Foll. 6 months after acute rheumatism. | 10 injns. 4-5-16 to 22-5-16; button cautery. | Cured 24-5-16. |
| 50 | Myalgia in back. | Several weeks. | 10 injns. 20-5 16 to 7-6-16; button cautery. | Greatly improved 21-6-16. |
| 51 | Myalgia in back and legs. | Since childhood. | 10 injns. 30-5-16 to 17-6-16. | Not much improved. Later d.m.u. |
| 53 | Myalgia in thigh. | Several weeks. | 10 injns. 13-6-16 to 1-7-16. | Returned to duty cured 1-8-16. |
| 54 | Acute rheumatism. | Third attack. | 10 injns. 23-6-16 to 11-7-16. | Pains quite gone 4-8-16. Later d.m.u. for v.d.h. |
| 55 | Subacute arthritis. | Recurrent 27 months. | 10 injns. 18-7-16 to 5-8-16. | Cured 4-8-16. |
| 61 | Myalgia in back and legs. | Recurrent 3 years. | 10 injns. 13-8-16 to 31-8-16. | Quite cured 20-9-16. |
| 67 | Myalgia in legs. | Recurrent several years. | 5 injns. 7-10-16 to 15-10-16; massage; faradism. | Very much improved 23-10-16. |

* Injections stopped because of reaction with eruption.

one-third were very much benefited, but passed out of observation before it could be determined whether they would become quite free of their trouble.

The method of treatment finally adopted was to keep the patient in bed for the first fortnight, and to give the colloidal sulphur (beginning with 1 mil. dose and rising to 2 mils. if no reaction took place) every second day for three weeks. With this were combined massage on the alternate days, and occasional hot alkaline baths. Commonly there was no general or local reaction, but in some cases the temperature rose about 2° on the day after an injection; and now and then a painful swelling developed at the site of the injection, which was, however, readily dissipated by massage.

*Conclusions.*—1. Intramuscular injections of colloidal sulphur are of the very greatest value in the treatment of subacute painful conditions in the muscles and joints. 2. The most satisfactory course of treatment consists of an injection administered every second day for three weeks (10 injections), combined with rest and with massage on the intervening days. 3. In the greater number of subacute cases, lasting several months, complete recovery may be expected after three to five weeks from the commencement of the treatment. 4. This method is also very helpful in lingering cases of gonorrhœal rheumatism. 5. It does not, however, take the place of salicylate of soda in relieving the pains of acute articular rheumatism.

Edinburgh.

# THE EFFECT OF VACCINIA ON THE WELL-BEING OF CHILDREN

## AS JUDGED BY THEIR REACTION TO SUBSEQUENT INFECTIONS.

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THE immediate injuries and complications resulting from vaccination have been very fully discussed in the literature of the subject. It would appear that while the infectious disease vaccinia is mild, danger lies in the possible infection of the open wound, and that improved quality of vaccine virus and use of aseptic methods have greatly diminished this risk.

It has been alleged, however, that the constitutional disturbance produced by vaccination in the first year of life cannot be regarded as other than serious, since the effect of any mild infection at that tender age can gravely prejudice the child's future growth and diminish its resistance to disease. So far as I am aware, no information on this point has been published, and it has seemed that some evidence might be obtained by observing the effects of other infectious diseases in vaccinated as compared with unvaccinated children.

Accordingly a record has been kept of the presence or absence of vaccination scars on all children under 5 years admitted to the City of Glasgow Fever Hospital, Ruchill, during the years 1910 to 1913, and the accompanying tables show the incidence of death and of complications among the vaccinated and unvaccinated suffering from scarlet fever, diphtheria, measles, and whooping-cough. Tables for erysipelas, broncho-pneumonia, and enteric fever have also been prepared, but in these diseases the number of cases is so small that only total numbers are submitted. It may be stated that when doubt existed as to the presence or absence of vaccination scars friction was applied to the skin, and only those cases were regarded as vaccinated in which scar-tissue stood out pale against the hyperæmic skin.

In Table II. are given: (1) the number of children under 5 years of age admitted to hospital during the three years' period; (2) the death-rates among the vaccinated as compared with the unvaccinated in each of the diseases; and (3) a comparison is made to differentiate male and female children.

*Age.*—The number of cases is too small to allow of any useful information being derived from the figures relating to the different age periods. The mortality in the following age periods may be mentioned:—

| | | | | | |
|---|---|---|---|---|---|
| Of scarlet fever cases in third year | 9·4 | p.c. of v. died, unv., | 8·6 | p.c. |
| ,, diphtheria ,, | fourth ,, | 11·8 | ,, | ,, | 15·6 ,, |
| ,, measles ,, | second ,, | 17·0 | ,, | ,, | 23·2 ,, |
| ,, whooping-cough cases in first ,, | | 41·9 | ,, | ,, | 41·3 ,, |

Convulsions provided a terminal symptom in the whooping-cough cases in which death was not accounted for by any of the tabulated complications.

TABLE I.—*Infectious Diseases in Children aged 0 to 5 Years in the Years 1910 to 1913.*

A. *Scarlet Fever—Males.*

| Age periods. | Cases. | Deaths. | Vaccinated cases. | | | | | | | | | | | Unvaccinated cases. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total number. | Pure cases. | Sequelæ and complications. | | | | | | | | Deaths. | Total number. | Pure cases. | Sequelæ and complications. | | | | | | | | Deaths. |
| | | | | | Joints. | Kidney. | Heart. | Lung. | Septic. | Other. | Sec. cases. | Other dis. | | | | Joints. | Kidney. | Heart. | Lung. | Septic. | Other. | Sec. cases. | Other dis. | |
| 0–1 | 19 | 3 | 12 | 6 | — | 1 | — | — | 2 | — | 1 | 2 | 3 | 7 | 6 | — | — | — | — | 1 | — | — | — | — |
| 1–2 | 74 | 15 | 58 | 25 | 1 | — | — | 1 | 26 | — | 2 | 3 | 13 | 16 | 3 | — | — | — | — | 8 | — | — | 5 | 2 |
| 2–3 | 116 | 6 | 97 | 46 | — | 2 | 1 | 1 | 39 | — | — | 8 | 6 | 19 | 12 | — | — | — | — | 5 | — | — | 2 | — |
| 3–4 | 151 | 6 | 139 | 70 | 3 | 4 | 1 | 0 | 40 | 3 | 4 | 14 | 6 | 12 | 4 | — | — | — | — | 5 | — | 1 | 2 | — |
| 4–5 | 166 | 7 | 158 | 99 | — | 2 | 1 | 1 | 29 | 4 | 7 | 15 | 7 | 8 | 3 | — | — | — | — | 3 | — | — | 2 | — |
| *Scarlet Fever—Females.* | | | | | | | | | | | | | | | | | | | | | | | | |
| 0–1 | 17 | 1 | 12 | 7 | — | — | — | — | 5 | — | — | — | — | 5 | 3 | — | 1 | — | — | 1 | — | — | — | 1 |
| 1–2 | 57 | 6 | 44 | 19 | — | — | — | 1 | 13 | — | 4 | 7 | — | 13 | 8 | — | — | — | — | 3 | — | — | 2 | 2 |
| 2–3 | 111 | 15 | 95 | 38 | 3 | 5 | — | — | 34 | 4 | 2 | 18 | 12 | 16 | 9 | — | 1 | — | 1 | 2 | 1 | — | 2 | 3 |
| 3–4 | 168 | 12 | 149 | 85 | 3 | 3 | — | — | 58 | 2 | 4 | 14 | 8 | 19 | 7 | — | 4 | — | — | 6 | — | — | 2 | 4 |
| 4–5 | 186 | 7 | 176 | 102 | 3 | — | — | — | 37 | 3 | 8 | 17 | 7 | 10 | 4 | — | 1 | — | — | 4 | — | — | 1 | — |

Sec. cases, Secondary cases. Other dis., Other diseases.

B. *Diphtheria—Males.*

| | | | | | | | | | P | L | | | | | | | | P | L | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0–1 | 45 | 9 | 24 | 14 | — | — | — | 2 | 2 | 1 | 4 | 1 | 5 | 21 | 8 | — | — | — | 2 | 2 | 1 | 8 | — | 4 |
| 1–2 | 99 | 19 | 80 | 54 | — | — | — | 5 | 1 | 1 | 13 | 6 | 15 | 19 | 9 | — | — | — | 2 | — | 2 | 4 | 2 | 4 |
| 2–3 | 134 | 30 | 117 | 81 | — | — | — | 5 | 4 | 4 | 13 | 10 | 27 | 18 | 12 | — | — | — | — | 2 | 1 | — | 3 | 3 |
| 3–4 | 131 | 17 | 119 | 84 | — | — | — | — | — | 6 | 12 | 14 | 15 | 12 | 5 | — | — | — | 1 | 3 | 2 | 1 | 2 | |
| 4–5 | 135 | 26 | 117 | 80 | — | — | — | — | 4 | 13 | 9 | 9 | 23 | 18 | 11 | — | — | — | 1 | — | 3 | 2 | 1 | 3 |
| *Diphtheria—Females.* | | | | | | | | | | | | | | | | | | | | | | | | |
| 0–1 | 28 | 13 | 15 | 11 | — | — | — | 1 | — | — | 2 | 1 | 7 | 13 | 6 | — | — | — | 2 | — | 1 | 3 | 1 | 6 |
| 1–2 | 96 | 16 | 72 | 40 | — | — | — | 5 | 4 | 2 | 11 | 10 | 12 | 24 | 18 | — | — | — | 1 | 1 | — | 2 | 2 | 4 |
| 2–3 | 116 | 27 | 97 | 75 | — | — | — | — | 2 | 1 | 12 | 7 | 19 | 19 | 15 | — | — | — | 1 | — | — | — | 3 | 8 |
| 3–4 | 130 | 15 | 110 | 73 | — | — | — | 3 | 2 | 1 | 4 | 12 | 12 | 20 | 12 | — | — | — | 1 | 2 | 1 | 2 | 2 | 3 |
| 4–5 | 138 | 20 | 125 | 98 | — | — | — | — | 1 | 1 | 3 | 1 | 19 | 13 | 10 | — | — | — | — | — | 1 | 1 | 1 | 1 |

P, paralyses. L, laryngeal cases.

C. *Measles—Males.*

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0–1 | 50 | 15 | 25 | 14 | — | — | — | 6 | 2 | — | — | 3 | 8 | 25 | 16 | — | — | — | 4 | 2 | 2 | — | 1 | 7 |
| 1–2 | 111 | 20 | 78 | 49 | — | — | — | 21 | 5 | — | — | 3 | 12 | 33 | 20 | — | — | — | 10 | 2 | 1 | — | — | 8 |
| 2–3 | 118 | 14 | 97 | 69 | — | — | — | 18 | 7 | — | — | 3 | 12 | 21 | 12 | — | — | — | 4 | 4 | — | — | 1 | 2 |
| 3–4 | 96 | 9 | 80 | 55 | — | — | — | 12 | 8 | — | — | 5 | 6 | 16 | 13 | — | — | — | 2 | 1 | — | — | — | 3 |
| 4–5 | 83 | 1 | 72 | 53 | — | — | — | 2 | 10 | — | — | 7 | — | 11 | 10 | — | — | — | 1 | — | — | — | — | 1 |
| *Measles—Females.* | | | | | | | | | | | | | | | | | | | | | | | | |
| 0–1 | 32 | 6 | 17 | 9 | — | — | — | 7 | 1 | — | — | — | 4 | 15 | 13 | — | — | — | 2 | — | — | — | — | 2 |
| 1–2 | 92 | 18 | 69 | 45 | — | — | — | 15 | 5 | 1 | — | 3 | 13 | 24 | 15 | — | — | — | 4 | 3 | — | — | 1 | 5 |
| 2–3 | 107 | 8 | 83 | 63 | — | — | — | 6 | 5 | — | — | 9 | 6 | 24 | 17 | — | — | — | 4 | — | 1 | — | 2 | 2 |
| 3–4 | 102 | 3 | 87 | 71 | — | — | — | 4 | 3 | — | — | 9 | 2 | 15 | 11 | — | — | — | 3 | 1 | — | — | — | 1 |
| 4–5 | 74 | 1 | 63 | 51 | — | — | — | 6 | 5 | — | — | 1 | 1 | 11 | 7 | — | — | — | 2 | 2 | — | — | — | — |

D. *Whooping-cough—Males.*

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0–1 | 53 | 26 | 9 | 7 | — | — | — | 2 | — | — | — | — | 3 | 44 | 30 | — | — | — | 8 | 1 | 3 | — | 2 | 23 |
| 1–2 | 74 | 22 | 47 | 24 | — | — | — | 17 | 1 | — | — | 5 | 16 | 25 | 16 | — | — | — | 6 | 2 | — | — | 1 | 6 |
| 2–3 | 75 | 10 | 57 | 33 | — | — | — | 17 | 3 | — | — | 4 | 6 | 18 | 10 | — | — | — | 6 | 1 | — | — | 1 | 4 |
| 3–4 | 83 | 5 | 71 | 50 | — | — | — | 13 | — | — | — | 8 | 4 | 12 | 8 | — | — | — | 3 | — | — | — | 1 | 1 |
| 4–5 | 48 | 4 | 40 | 33 | — | — | — | 3 | — | 1 | — | 3 | 4 | 8 | 8 | — | — | — | — | — | — | — | — | — |
| *Whooping-cough—Females.* | | | | | | | | | | | | | | | | | | | | | | | | |
| 0–1 | 58 | 20 | 22 | 13 | — | — | — | 5 | 1 | — | — | 3 | 10 | 36 | 26 | — | — | — | 8 | 1 | — | — | 1 | 10 |
| 1–2 | 77 | 21 | 51 | 31 | — | — | — | 14 | 1 | 2 | — | 3 | 16 | 26 | 20 | — | — | — | 5 | — | 1 | — | — | 5 |
| 2–3 | 65 | 6 | 48 | 35 | — | — | — | 6 | 2 | 2 | — | 3 | 2 | 17 | 6 | — | — | — | 6 | 1 | 2 | — | 2 | 4 |
| 3–4 | 100 | 7 | 86 | 67 | — | — | — | 13 | — | 1 | — | 5 | 5 | 14 | 8 | — | — | — | 4 | — | 2 | — | — | 2 |
| 4–5 | 63 | 1 | 59 | 44 | — | — | — | 6 | 5 | — | — | 4 | 1 | 4 | 4 | — | — | — | — | — | — | — | — | — |

TABLE II.

| — | Total cases. | | | Mortality per cent. | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | V. | Un. | V. | Un. | V. | | Un. | |
| | | | | | | M. | F. | M. | F. |
| Scarlet fever ... ... | 1065 | 940 | 125 | 6·6 | 9·6 | 7·5 | 5·7 | 3·2 | 15·9 |
| Diphtheria ... ... | 1053 | 876 | 177 | 17·6 | 21·5 | 18·6 | 16·5 | 18·2 | 24·7 |
| Measles ... ... ... | 865 | 671 | 194 | 9·5 | 16·0 | 10·8 | 8·2 | 19·8 | 11·4 |
| Whooping-cough ... | 694 | 490 | 204 | 13·7 | 27·0 | 14·7 | 12·8 | 31·8 | 21·6 |
| Erysipelas ... ... | 71 | 44 | 27 | 11·4 | 44·4 | — | — | — | — |
| Broncho-pneumonia | 33 | 20 | 13 | 30·0 | 38·5 | — | — | — | — |
| Enteric fever ... ... | 23 | 17 | 6 | 0 | 16·7 | — | — | — | — |

V, vaccinated. Un., unvaccinated.

*Complications.*—Again, if the prevalence of complications in the several diseases be considered, the following figures are obtained:—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Of scarlet fever cases | 32·6 | per cent. | of v. | developed | complications. | | |
| ,, ,, | 37·6 | ,, ,, | of unv. | ,, | ,, | | |
| Of diphtheria ,, | 11·2 | ,, ,, | of v. | ,, | ,, | | |
| ,, ,, | 17·5 | ,, ,, | of unv. | ,, | ,, | | |
| Of measles ,, | 22·2 | ,, ,, | of v. | ,, | ,, | | |
| ,, ,, | 28·4 | ,, ,, | of unv. | ,, | ,, | | |
| Of whooping-cough | 23·5 | ,, ,, | of v. | ,, | ,, | | |
| ,, ,, | 29·4 | ,, ,, | of unv. | ,, | ,, | | |

And this constant predominance of complications among the unvaccinated is similarly distributed if the cases are subdivided into males and females.

Finally, if the most frequent complication in each disease is separately examined it is found that there developed—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Septic complications in scarlet fever in 26·9 p.c. of v., in 30·4 p.c. of unv. | | | | | | | |
| Diphtheritic paralysis in ... ... ... | 6·5 | ,, | ,, | 7·3 | ,, | ,, | |
| Lung complications in measles in ... | 14·5 | ,, | ,, | 18·6 | ,, | ,, | |
| ,, ,, in whooping-cough ... | 19·6 | ,, | ,, | 22·5 | ,, | ,, | |

*Discussion and Conclusion.*

The figures deal with 3804 cases of infectious diseases, of which 3058 were vaccinated and 746 unvaccinated, and they show repeatedly an increase in the incidence of disease complications and death among the unvaccinated. A larger number of cases will have to be examined before this point can be regarded as generally proved.

It is not contended that vaccinia increases the resistance of the body to disease in general. The results obtained in this inquiry must depend in part on the inclusion among the unvaccinated of weakly children exempted from vaccination on purely medical grounds, and this inclusion may be sufficient to explain the increased vulnerability of the unvaccinated group. On the other hand, the healthy children of conscientious objectors to vaccination appear in the unvaccinated group, and the increase in the number of these children during recent years is shown in Table III., for which I am indebted to Dr. A. K. Chalmers, medical officer of health of Glasgow.

TABLE III.—*Glasgow: Statement of Number of Declarations of Conscientious Objection to Vaccination in Relation to the Births Registered.*

| Year. | Births. | C.O.* | Per-centage. | Year. | Births. | C.O.* | Per-centage. |
|---|---|---|---|---|---|---|---|
| 1907 | 23,926 | 474 | 2·0 | 1911 | 21,584 | 3791 | 17·6 |
| 1908 | 23,743 | 2183 | 9·2 | 1912 | 21,812 | 4371 | 20·0 |
| 1909 | 23,002 | 2653 | 11·5 | 1913 | 28,688 | 6804† | 23·7 |
| 1910 | 22,014 | 3231 | 14·7 | 1914 | 29,455 | 7580 | 25·7 |

* Conscientious objectors. † Extended city.

Whatever be the explanation of the figures submitted, the fact remains that they afford no evidence that vaccinia has a prejudicial effect on a child's future well-being as judged by its response to subsequent infection. I have pleasure in acknowledging my indebtedness to Dr. John Brownlee, statistician to the Medical Research Committee, for suggesting this investigation and placing the information at my disposal.

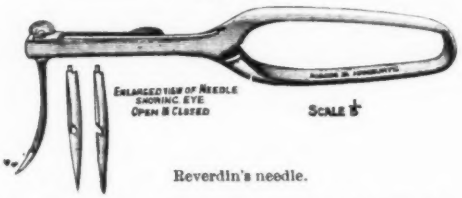
COUNTY OF ABERDEEN: REPORT OF TUBERCULOSIS MEDICAL OFFICER FOR 1916.—The report for 1916 of the tuberculosis medical officer for the county of Aberdeen states that during the year 393 cases were notified, the death-rate running almost parallel with that for the whole of Scotland. The doubts once entertained as to the advisability of the compulsory notification of tuberculosis have proved groundless. Notification has not led, as was feared, to sufferers from the disease being regarded as lepers. Occupation did not form an important factor in the incidence of the disease; heredity, defective housing, and malnutrition were found to be much more important factors. The report strongly condemns box-beds, and regards the housing problem as perhaps the most outstanding of the many difficulties associated with the eradication of tuberculosis. Among school children tuberculosis was found to be fairly prevalent, the usual site of the disease being at the root of the lungs, where the bronchial glands became affected. The report emphasises the need of after-care committees, and states that, on the whole, the expenditure under the county council scheme has been justified and has borne good fruit.

# ON THE SOLE USE OF REVERDIN'S NEEDLE.

BY VICTOR BONNEY, M.S., M.D., B.SC. LOND., F.R.C.S.,
SURGEON TO THE CHELSEA HOSPITAL FOR WOMEN AND TO THE MILITARY BRANCH OF THE MIDDLESEX HOSPITAL AT CLACTON; ASSISTANT GYNÆCOLOGICAL SURGEON TO THE MIDDLESEX HOSPITAL, ETC.

THE subject of how to save time in surgical operations is always important, and I am therefore venturing to describe a method of general operative technique which I have employed to that end for nearly four years. It turns upon the sole use of Reverdin's needle. (Fig. 1.) The needle in question, which, it may be recalled, has an eye that can be opened and closed by means of a slide, is employed in this country, but to nothing like the same extent as in France, where it is the only needle in common use. Its great advantage is that it renders a second assistant to thread the needles unnecessary, for they are threaded by the first assistant, and he and his chief are therefore in this particular self-contained.

FIG. 1.




Reverdin's needle.

*The Use of Reverdin's Needle.*

For those who are not accustomed to this needle it may be remarked that its use requires a little practice. There is a tendency at first to open the eye whilst passing it through the tissues, especially if these are resistant, or to forget to close it before drawing it back, either of which mistakes causes the needle to catch in and lacerate the tissues, while the needle itself is very likely to be damaged.

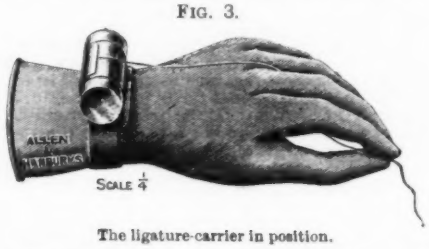
Another and very important point concerns the assistant who threads it. Unlike a *notched* needle, in which a degree of tension must be kept upon the suture during the withdrawal of the needle, the assistant, once he has placed the suture in the eye and the slide is closed, *must let the suture go loose.* If he pulls upon it, the withdrawal of the needle is rendered jerky, and the slide that closes the eye is liable to be injured.

FIG. 2.

The author's wrist-ligature carrier.

The whole instrument is a delicate one; this is its drawback. The needles, which are detachable from the holder, require to be carefully looked after. They must be taken to pieces immediately after use, cleaned, boiled, and then stored in absolute alcohol, in which they will not rust.

FIG. 3.




The ligature-carrier in position.

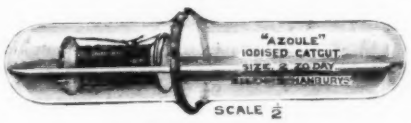
The surgeon should have two sizes of needles, each in its separate holder, one being very fine for delicate suturing such as is required in intestinal anastomosis, and the other a coarser one for ordinary use.

*Carriage of the Suture and Ligature Material.*

In Paris I saw the suture material provided for in several ways. Thus, the surgeon carried in his left hand a sheaf of

ready-cut lengths; or the assistant cut off the lengths as he required them, from a reel placed near him. None of these methods seemed to me to be ideal, and I therefore devised the wrist ligature-carrier shown in Fig. 2. It consists of a little cylindrical metal box, opening at either end, in which is contained a glass reel on which the ligature material

FIG. 4.




Catgut on a reel.

is wound. The cylindrical box is attached to the wrist by means of a broad red rubber band in a similar manner to a wrist-watch. (Fig. 3.) This carrier is not only useful as a means of providing suture material with which to thread the Reverdin needle, but is a great time-saver when the surgeon has to ligature a number of vessels one after the other, as, for instance, in amputation of the breast. To use it most advantageously he should be able to tie the single-handed knot with equal facility with either hand. When operating I wear one of these carriers on either wrist, and my assistant does likewise. We are thus absolutely self-contained, having all the suture and ligature material we require in front of us.

FIG. 5.

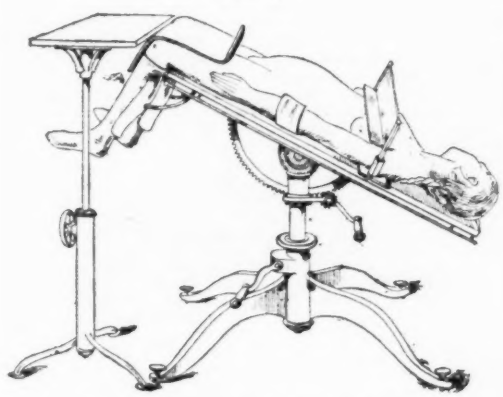
The author's "single-hand" scissors.

Any material the surgeon fancies may be wound upon the glass reel inside the carrier. Messrs. Allen and Hanburys put up at my suggestion a "tanned" catgut, wound on reels that fit the carrier. (Fig. 4.) Each reel, immersed in iodine solution, is contained within a glass tube, in which it is sterilised by superheating. The reel carries double the length of catgut that is contained in the similarly sterilised hank. For all purposes catgut is better wound on a reel, for hanks are troublesome to unravel, and in the process the catgut is often brought dangerously near to unsterilised areas.

*Threading, Tying, and Cutting the Sutures.*

The assistant threads the needle from one of the four carriers, according to the kind of suture material required.

FIG. 6.

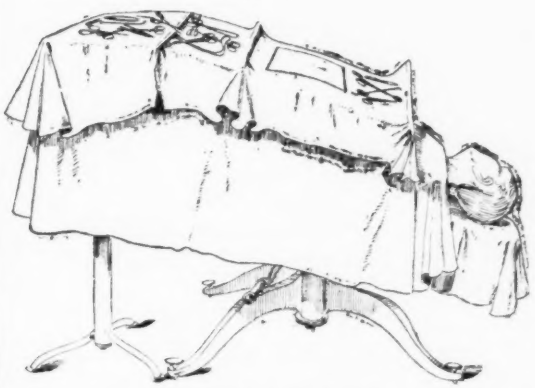


The knee table, screen, and elbow table in position.

The tying of the suture should be done either by the surgeon or the assistant, according to the side of the table from which the tying may be most satisfactorily and expeditiously accomplished. A large number of operative manipulations are best carried out from the assistant's side, and should be so effected. This, of course, postulates an able assistant. One great advantage of the technique I am now describing is that it makes for "team work."

Whilst the assistant is tying the suture the surgeon is passing the needle for the next one; and as he can do this quicker than the knot can be tied, he should cut the suture short himself, for otherwise an interval will elapse during which he is doing nothing. To avoid having to drop the Reverdin needle which he holds in his right hand or the dissecting forceps which he holds in his left, I have devised the scissors shown in Fig. 5. These scissors can be held in either hand in such a way as to leave the index finger and thumb completely free. The handles are gripped between the thenar and hypothenar eminences, and the shanks pass pass out *through the cleft between the index and second fingers.* They save much time otherwise consumed in picking up and laying down.

FIG. 7.

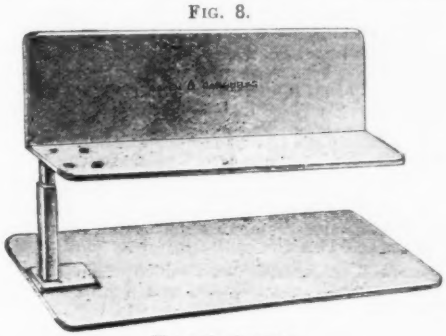


The complete arrangement.

*Arrangement of the Tables and Disposition of the Instruments.*

In order to complete the technique it is necessary to have the instruments and swabs so placed that neither the surgeon nor his assistant need turn away from the operating table to get them. To achieve this I employ the following arrangements in all cases of abdominal section for pelvic or lower abdominal disease. The patient is in the tilted position. On her knees is hung my "knee-table," shown in Fig. 6, which consists of a plate of thin metal bent across its middle to nearly a right angle and having a flange at one end. This device, when covered by the sterilised body-sheet, forms an excellent table on which instruments may be placed without slipping down between the thighs or into the abdomen. (Fig. 7.) Towards the head of the patient is placed the screen which I devised, shown in Fig. 8. It has projecting from it a ledge, which also forms a little table on which instruments can be placed. The screen and the knee-table having been placed in position, a sterilised body-sheet is laid over all, and an elbow-table on which are the instruments and swabs ready laid out is now brought up to the knee-table so as to extend its area. (Figs. 6 and 7.) A continuous sterile surface is thereby formed, the only break in

FIG. 8.



The author's screen.

which is the aperture left in the sheet for access to the site of the wound.

This aperture is the weak spot in an otherwise aseptic "operating bench," for the skin cannot be absolutely sterilised. To meet this difficulty, sterilised gauze, linen, or rubber sheets are attached to the edges of the wound in the usual way. The ideal would be to cover the skin with an absolutely impermeable sterile varnish which would remain perfectly adherent throughout the operation. I have tried to make such a varnish, but hitherto without success, although I have used a large number of substances; they all tend to peel off at the wound edges. The use of "crystal violet" as a means of providing a permanently sterile surface to the skin during an operation promises a solution of this difficult problem.

*Conclusion.*

The technique I have described requires a little practice, and an assistant trained in it; but these attained, it markedly facilitates and expedites operating. The mere fact of not having to turn round lightens and quickens the work; while the having of all one's appliances immediately to hand, and not being obliged to give orders or make requests to an assistant standing behind one's back, removes a potential source of irritability and impatience.

Devonshire-place, W.

# ULTRA-VIOLET RADIATION:

## A SPECTROSCOPIC INVESTIGATION OF SOME SOURCES OF ULTRA-VIOLET RADIATION IN RELATION TO TREATMENT BY ULTRA-VIOLET RAYS.[1]

BY CHARLES A. SCHUNCK, F.C.S.

As ultra-violet radiation is extensively used therapeutically I thought that a spectroscopic comparison of some of its sources, showing their constituent radiations, wave-lengths, and relative intensities, and the attempt to ascertain the most efficient for the purpose, would be of interest and value.

After describing the regions of the spectrum the following table was given:—

*The Spectrum Regions.*

| | | | |
|---|---|---|---|
| Visible region ... | 7594–3934 A.U. | † Lyman region ... | 1230–600 A.U. |
| Ultra-violet region | 3934–1850 ,, | Unexplored ,, ... | 600–8 ,, |
| * Schumann ,, | 1850–1230 ,, | X and Gamma ray... | 8–0·07 ,, |

* Schumann substituted fluorite for quartz and adopted a vacuum spectroscope to avoid absorption of the rays.

† Lyman in 1914, using a concave grating (dispensing with necessity of lenses) enclosed in a brass tube 11 cm. in diameter and over a metre long containing hydrogen at a pressure of 2 to 3 mm. and using a strong disruptive discharge through a discharge tube, was able to extend the spectrum to λ 900; and in 1915, by substituting He free from N for H and giving an exposure of about 10 minutes, repeatedly observed a number of new lines, the most refrangible of which was λ 600.

From λ 600 to about λ 8, where the softest characteristic X rays of Al have been recorded, is an unexplored region, the region where that profound change from light radiation to X ray takes place, and which, when means are devised for its investigation, may lead to most important results. Lyman considers it can be still further extended below λ 600 by purely spectroscopic means.[2] The wave-length of the soft X rays is of the order of 1 Angström unit and of the harder 0·25. The value 0·07 is for the most penetrating rays from radium C, given me by Sir Ernest Rutherford in 1915, who also gave his measurement of the hardest rays from the Coolidge tube as 0·14 A.U.

The Quartz Spectrograph, with which the spectra were recorded, is of well-known design and admirably adapted for the purpose.

The one completed for me last year by Messrs. Bellingham and Stanley, of 71, Hornsey Rise, has various improvements upon the original model of A. Hilger and Co., from whom I had one of the first in 1908. The salient features are its compactness, the complete enclosement of the prism, and lenses able to take the entire spectrum from the extreme red to the ultra-violet at λ 2100 on one plate 10 inches long in excellent focus throughout; when once set no further adjustment is required. [A description of the instrument was here given.]

[1] Abstract of a paper read before the Röntgen Society.

[2] Theodore Lyman: The Extension of the Spectrum beyond the Schumann Region, Astrophysical Journal, March, 1916.

For the arc spectra the voltage was 100, and the amperage was varied from 5 to 10. For each plate the amperage and exposures for each spectrum thereon were kept constant so as to get comparable results. The exposures in the arc spectra varied from 5 to 15 seconds, whereas the corresponding spark spectra took 2½ to 5 minutes. The plates used were Wratten and Wainwright pan-chromatic and the sources were compared on the same plate. The various sources were examined both in the arc and spark discharge, though the latter is hardly applicable therapeutically in general, the spark only being a point of light compared to the arc, and to be at all practicable would have to be condensed and then but a very small area would be covered. This might be useful in some cases, however.

*The Sources of Radiation.*

The sources of radiation examined consisted of—

Metallic electrodes of pure[3] W, Mo and Fe; ¼ inch carbon rods impregnated by boiling in solutions of sodium tungstate, uranium nitrate, ammonium molybdate, and titanous chloride; and ½ inch cored carbons filled with $U_3O_8$, $Fe_2O_3$, wolfram (75 per cent. $WO_3$, 20 per cent. FeO, 5 per cent. MnO), the ore of tungsten, and pure W and Mo (99 per cent.) in the form of powder, together with the Simpson electrodes which are said to consist of wolfram. These are very unsteady in the arc, splutter badly, and a glassy deposit forms on the electrodes that has to be removed before the current will pass again, whereas the above carbons are quite steady, which is a great advantage.

The reason for trying the impregnated and cored carbons was the readiness one can assimilate any substance for the arc discharge and the endeavour to get, if possible, a more intense and cheaper source in this manner than the Simpson's or metallic tungsten. From the spark spectra experiments I had high hopes that the carbons impregnated with uranium nitrate and ammonium molybdate[4] would prove an excellent source, and rival that of W, whose spectrum is of a similar character. But though it has a more intense spectrum than W in the spark and of greater extent, it falls off considerably after λ 2500 and ends at λ 2300, compared to W in the arc, which extends to λ 2200 on this plate. W also appears to be more intense in the arc than the spark.

*The Spectroscopic Results.*

The following are the spectroscopic results obtained:—

The most intense and richest source of ultra-violet radiations is that of the W metallic electrodes in the arc. The spectrum[5] consists of very many lines of nearly equal intensity throughout the ultra-violet spectrum, so close together as to form an almost continuous spectrum extending with but slight loss of intensity to λ 2130 (the limit of the instrument). The W spectrum and the Simpson electrodes extend further with the same amperage and exposure than any of the sources examined.

The Mo arc spectrum is of a similar character but not so intense throughout, extending to λ 2190 but losing in intensity at λ 2300. The Fe arc spectrum is very rich in ultra-violet radiations, and though containing some very intense groups of lines is not so uniform throughout as that of W and extending only to λ 2250. Its spark spectrum is characterised by a maximum of intensity in the neighbourhood of λ 2400, which maximum λ2500 is not so pronounced in the arc.

The spectrum of the Simpson electrodes is very similar in character and of the same intensity spectroscopically as that of the W arc, but their unsteadiness may detract from their effectiveness therapeutically as compared to metallic W electrodes with treatment exposures. Dr. Sidney Russ was the first to examine the spectrum and to compare it with that of pure W, and he pointed out and came to the conclusion that they were apparently identical, thereby rendering a signal service. The wolfram cored carbons have a similar spectrum, but it is not so intense with the same ampèrage and exposure. A careful comparison of the spectra of metallic tungsten, Simpson's and wolfram, shows that though very similar, supporting Dr. Russ's conclusion, yet there are differences from the W spectrum, and giving an increased amperage to the wolfram carbons, almost an exact match is obtained between the Simpson's and them.

Of the cored carbons the W powder gives a less intense spectrum than the W electrodes. $Fe_2O_3$ almost equal to the

[3] W = Tungsten, Mo = Molybdenum, Fe = Iron, Ti = Titanium, U = Uranium, Mn = Manganese, C = Carbon.

[4] Known as the "Jones electrodes," and used as a source of light for recording absorption spectra in the ultra-violet, as the lines are so numerous and close together as to form almost a continuous spectrum.

[5] Shown at a meeting of the society last year by Messrs. Morphy and Mullard in their paper on "The Enclosed Tungsten Arc," and also by Major Wilson, C.A.M.C., when describing "a new tungsten arc lamp" he has devised.

Fe electrodes with advantage of steadiness which the latter lack, as they scintillate considerably. Mo powder like the Mo electrodes consisting of many lines extending to λ 2300, but not nearly so intense. The $U_3O_8$ was disappointing, and better results were to be expected. The oxide, however, was not reduced to the metallic state by the arc discharge which may be the cause, and shortly I hope to be able to examine the arc spectrum of metallic uranium electrodes. The spectrum loses intensity at λ 2600, but, so far, the lines are much closer together than W, and the spectrum more intense. The numberless lines and their closeness, both in the arc and spark spectrum of U, is its great characteristic.

The impregnated carbons in the spark are much more intense than in the arc. The uranium nitrate and ammonium molybdate impregnation gives a magnificent intense, almost continuous spectrum extending to λ 2300 without much loss of intensity, and is the most intense and richest in ultra-violet radiations of any spark source. The carbons impregnated with sodium tungstate were not nearly so continuous or intense. In the arc as far as λ 2500 the carbons impregnated with uranium nitrate and ammonium molybdate are more intense and continuous than the W arc, but their spectra do not extend as far, λ 2300 being about the limit. The sodium tungstate and titanous chloride impregnation are particularly poor. The same impregnated carbons were used both for the spark and arc.

*Radiations of the sources used in treatment.*—By comparing the arc spectra of carbon, the iron spark and arc, the mercury vapour arc, the Simpson electrodes and metallic tungsten in the arc, the nature of the radiations, and the intensity of the various sources that have been and are used in ultra-violet radiation treatment are seen.

Carbon is the source used in the Finsen lamp, the spectrum being very poor in ultra-violet rays and the exposure as long as 70 minutes at a time. After the Finsen lamp, I believe both the iron arc and spark were used, the latter with a quartz condenser with exposures of 3 minutes. Then the mercury vapour arc as in the Kronmeyer lamp, with a quartz condenser as a compressor on the skin, with exposures of 3 minutes or thereabouts. The spectrum consists of intense isolated bands and lines, the most intense and broad of all being just inside the Schumann region at λ 1849·6. A year ago the Simpson electrodes were the vogue until Major Turrell adopted metallic tungsten, with which the maximum exposure is 5 minutes without a condenser.

In regard to filament lamps, like the spectrum of all incandescent solids, the spectrum which is a continuous one falls short of λ 3000, so they are hardly suitable for ultra-violet radiation treatment where radiations of shorter wave-length are the effective ones therapeutically, as I believe I have been able to prove.

### *Therapeutical Experiments.*

Through the valuable advice and assistance of Major W. J. Turrell, R.A.M.C., electro-therapeutic physician to the Radcliffe Infirmary, Oxford, to whom I am much indebted for the therapeutical aspect of ultra-violet radiation, I have been able to make some simple therapeutical experiments of the more intense sources.

Major Turrell [6] finds that the W arc (he was the first to apply this source) is the most efficient source clinically of ultra-violet radiation and superior in results obtained from the Simpson electrodes, which is supported by the spectroscopic examination. Within certain limits, he states, the intensity of the erythema produced on the skin in a given time may be taken as measuring the clinical efficiency of the radiation of the source. The open W arc he places 1 foot from the part to be treated, giving an exposure of 5 minutes with an ampèrage of 5 to 10, voltage 100, as the maximum dose.

The following experiments were undertaken :—

In conjunction with him my forearm was exposed for 5 minutes at a distance of 12 inches with a current strength of 5 ampères over different areas of the skin to the action of the electrodes in the arc, of metallic W, Simpson's and half inch cored-carbons filled with $U_3O_8$, W powder, wolfram and $Fe_2O_3$. The cored-carbons, which burned very steadily, gave no erythema. The W a fair reaction and the Simpson's slight in 12 hours; the former gave a slight redness in 2 hours, the latter very slight in the same time.

To get an increased effect I used the quartz cylindrical condenser under the same conditions as the spectra were taken, which forms an image of the arc 16 inches from the condenser in the form of a band about ½ inch wide on the skin of the forearm, the arc source being 3½ inches from the condenser. The current strength, voltage 100, was 9 to 10 ampères and the exposures about 2 minutes. An intense erythema was produced in a few hours with metallic W (indication in half an hour), not quite as much with the Simpson's (indication in 1 hour), and fairly intense with metallic Fe electrodes and the carbons cored with wolfram (indication in 2 hours). The exposure in this case was 2½ minutes, ampères 10. Using W as one electrode and a soft-cored carbon the other, alternately as "positive and negative," compared to W as both electrodes, there appeared but little difference in the erythema produced. With W as the positive electrode the arc is much the steadiest, and very steady indeed. The three spectra at 9 ampères and 10 seconds' exposures showed very little difference in intensity, W the best, then W as the positive electrode. Carbons impregnated with uranium nitrate and ammonium molybdate, 9 ampères and 4 minutes' exposures, gave a faintish erythema in 24 hours, but no reaction with an exposure of 2 minutes.

One mm. thickness of glass in front of the condenser with an exposure of 4 minutes at 9 ampères gave no reaction to the W arc, neither was there a reaction with a piece of microscopic cover-glass in front, whereas the W arc with 2 minutes' exposure gave a good redness on the skin in 12 hours. These cover-glass experiments were repeated several times, and there was no difference if the glass was placed on the skin. Only in one experiment was there a slight reaction with 2½ minutes' exposure and 10 ampères, and in this experiment I am not certain whether the glass was covering the lens completely. The 1 mm. glass and the cover-glass tested spectroscopically under the same conditions as the erythema experiments were made, cut off the spectrum at λ 2950 and λ 2750 approximately.

This shows, I think, fairly conclusively that radiations of λ 2750 approximately and upwards have no therapeutical value as judged by the erythema effect, whereas if the one experiment is correct there is an effect between λ 2750 and λ 2950. It must be remembered these experiments were only made upon my own skin; still, an exposure of 4 minutes to the W arc with the condensing lens is a very severe test, seeing that in the arc experiment of 2½ minutes at 10 ampères the erythema was so intense that it persisted for three weeks, the skin desquamating and causing a fair amount of irritation.

Dr. Sidney Russ [7] last year stated that the skin is very absorbent to A.U. radiations.

A piece of skin from the human abdomen 1·10 mm. thick placed in front of the slit of the spectrograph with the Simpson arc 20 cm. distant and giving an exposure of 2 minutes, cuts off the spectrum approximately at λ 3000, showing that ultra-violet radiations between λ 3000 and λ 2100 are very easily absorbed by the human skin, and this is the *same* region I find of therapeutical value. "With thickness of ½ mm. and 1½ mm. of skin and an increased exposure of 8 minutes the radiations between λ 3000 and λ 3800 were transmitted, but he considers it is doubtful whether more than 1 per cent. of the radiation penetrates as deep as 1 mm."

These two sets of experiments tend to show that the therapeutical effect is limited to the superficial tissues, and this is also the opinion of Major Turrell from the clinical aspect, who states in the paper above mentioned that "the therapeutical value of ultra-violet radiation appears to be due to its destructive action on micro-organisms and to the active hyperæmia which it induces in the superficial tissues."

I have also proved while constantly working with the W arc in this research, that a sheet of 1½ mm. glass placed between the arc and the face is a perfect protection from the effects of the radiations, especially to the eyes, which are particularly sensitive, which is supported by my own experience, my eyes being much affected before adopting this means of protection. During one day's experiments I calculated I was subjected for half an hour to the W arc 1 foot away, and with this simple protection there was no effect on the eyes or skin.

I think one can safely assert that the radiations of therapeutic value lie between λ 3000 and λ 1850, and I am now endeavouring by spectroscopic means to ascertain which part of this region has the greatest therapeutic efficiency. The W arc is no doubt the most intense source of radiation there is at present for the purpose. The open arc can be increased in intensity by using a quartz condensing lens, the absorption of which for these radiations is but slight. Pflüger for a piece 1 cm. thickness gives the values of

[6] Ultra-violet Radiation from the Tungsten Arc, Section of Electro-Therapeutics of Royal Society of Medicine, Oct. 20th, 1916; THE LANCET, 1916, ii., 790.

[7] From the Visible to the Gamma Ray Spectrum, Brit. Med. Jour., Jan. 22nd, 1916.

5·8 per cent. at λ 2200, 8 per cent. at λ 2140, 16·4 per cent. as λ 2030, but as much as 32·8 per cent. as λ 1860; while Collentz finds that throughout the spectrum to λ 2500 it is almost perfectly transparent in thicknesses up to 3 cm. If a reflecting mirror is used,[8] then platinum and nickel will be found superior to silver, and silicon the best of all reflecting surfaces. Silver reflects on an average 30 per cent. of the radiations between λ 3000 and λ 2000, platinum and nickel about 45 per cent., but silicon as much as 76 per cent. Mirrors of these substances can be readily prepared by cathode spluttering or electro-plating.

I have to thank Dr. Oberlander, Ph.D., Mr. J. C. Gardiner, F.C.S., and Mr. Arthur Schiff for the pure substances experimented with, and I am much indebted to Professor W. H. Perkin, F.R.S., for so kindly giving me the facilities of carrying on part of this investigation at the New Chemical Laboratories at Oxford.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF

### ACUTE INTESTINAL OBSTRUCTION BY MECKEL'S DIVERTICULUM

SUCCESSFULLY TREATED BY LAPAROTOMY.

BY E. MANSEL SYMPSON, M.D. CANTAB., M.R.C.S.,
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As cases of Meckel's diverticulum are not common, and those of intestinal obstruction thereby still less so, the following notes may be of interest.

The patient, a thin lad of 21, was admitted to the Lincoln County Hospital on May 1st last with acute intestinal obstruction. Two years previously he had an attack of acute peritonitis. An operation was performed at a naval hospital, where the abdomen was opened in the middle line, and drained. Two days before admission to the County Hospital he was suddenly seized with acute pain over the whole abdomen, of a spasmodic type, followed by persistent vomiting, which in 12 hours' time became definitely stercoraceous. Constipation had been absolute from the start. On admission he had well-marked "facies hippocratica," furred tongue, with foul breath smelling strongly fæcal. Temperature 97° F.; pulse-rate 130, of poor volume and feeble. Over the abdomen respiratory movements almost universally absent, distension and tympanites were evenly distributed all over, well-marked "ladder" pattern, and peristalsis visible synchronous with exacerbations of pain. The abdomen was universally rigid and tense, with no specially tender spot or any localising sign. A provisional diagnosis of "strangulation by bands" was made. A middle-line incision about 5 inches long was made partly in the line of the old scar. At first sight of the contents of the abdomen the condition appeared hopeless, as the much-distended ileum and jejunum were bound up by very numerous adhesions, some well organised and of old standing, but the majority of only recent date. A thorough and systematic division of adhesions was made and the freed gut, after examination, was returned into the peritoneal cavity, but the bowel was still distended. It was noticed that although by far the greater part of the small intestine was obviously obstructed, yet the portion of it just above the ileo-cæcal junction was flaccid and of ordinary size and appearance. This part of the bowel was traced upwards for about 2 feet, where a Meckel's diverticulum was found, about 4 inches long, which was adherent at its tip to the posterior abdominal wall and to the root of the mesentery opposite the body of the second lumbar vertebra, thus forming an open small window, through which about 2 feet of ileum had become prolapsed and strangulated. The implicated bowel was in fairly good condition, so the diverticulum was removed on similar lines to an appendicectomy, and the abdomen was closed. The after-treatment consisted in administration of 1 c.c. of pituitrin 8-hourly, calomel (gr. 1) every hour for 10 hours, and frequent injections of brandy and saline fluid. On the second day the bowels were well opened, and the patient was back on a full diet on the fifth day. Convalescence was uninterrupted and he was discharged cured and entirely relieved on May 29th, four weeks after admission to hospital.

I am much obliged to Mr. W. F. Stiell, our resident medical officer, for these notes and for help at the operation.

[8] The Reflecting Power of Metals in the Ultra-violet Region of the Spectrum, by E. O. Hulbert, Astrophysical Journal, 1915, xlii., 205.

### A CASE OF SUPRAPUBIC HERNIA.

BY WILLIAM H. FORSHAW, F.R.C.S. ENG.

CASES such as the one here described are of exceptional rarity. The only one I know of was described by Voeckler[1] in 1912.

A married woman, aged 41, with one child, aged 15 years, was recently admitted into the London Hospital. On the day before admission she, whilst in the act of micturition, suddenly felt a sharp pain just above the symphysis pubis. On examination of the region she discovered a lump which had never been noticed before. The pain of the swelling was intense and caused her to vomit every half hour, until she was admitted into hospital some 24 hours later. Her condition on admission was as follows: There was a hard, rounded swelling about the size of a doubled forefinger situated immediately above the symphysis pubis in front of the right rectus muscle, which was painful to the touch and gave no impulse on coughing. It was thought to be an interstitial inguinal hernia, but at the operation was found to be a strangulated hernia emerging from the abdominal cavity between the two recti muscles very near to their insertions. The sac was firmly nipped at the neck, and only with great difficulty could the director and knife be inserted. The constriction was divided in an upward direction—towards the umbilicus—to avoid danger of damage to the bladder. The gut was returned and the sac cut away. The stump was transfixed and sutured to the deep surface of the right rectus muscle. The patient made an uninterrupted recovery.

It is interesting to note that the patient also has a reducible left femoral hernia of three years' standing.

I am indebted to Mr. H. M. Rigby for allowing me to publish this case.

London Hospital.

[1] Lejars: Urgent Surgery, second edition, p. 228.

### A CASE OF ANTRAL ABSCESS TREATED WITH SALICYLIC ACID.

BY PERCY R. WILDE, M.D. ABERD.,
PHYSICIAN, LANSDOWN HOSPITAL, BATH.

ANTRAL abscess is often a very troublesome condition, and the following long-standing case in which the treatment adopted proved efficacious in stopping the discharge may prove suggestive.

The patient was an elderly lady with an abscess of the antrum which had existed for fourteen years. During this time the tube had been removed every night and morning and the cavity syringed with an antiseptic solution. Guided by the principle that all chronic discharging surfaces should be kept dry, and knowing that salicylic acid is one of the most powerful bactericides we possess, I treated her by plugging the antrum with a piece of gauze into which I had rubbed a powder consisting of salicylic acid one part and sacch. alb. four parts. This was passed loosely into the cavity and renewed daily. On the fourth day the discharge had ceased. Treatment was then suspended, a piece of cotton wool being placed over the opening of the sinus, which was kept in position by the denture the patient was wearing.

The treatment was effective. Three months later the patient reported that she had had no further trouble from the day of the last plugging.

Bath.

A GENERAL monthly meeting of the members of the Royal Institution of Great Britain will be held on Monday, July 2nd, at 5 P.M., at Albemarle-street, Piccadilly, W.

BRISTOL INSURANCE COMMITTEE.—At the last meeting of the Bristol Insurance Committee it was stated that, compared with 1916, the number of men on the index register for 1917 showed a decrease of 5430, and women an increase of 3439.

# Medical Societies.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF ANATOMY AND PHYSIOLOGY.

*Perfusion of the Frog's Heart with Nicotine.—Modification of Fatty Compounds in Intestinal Epithelium.*

A MEETING of this section was held on May 25th, Professor D. T. BARRY, the President, being in the chair.

The PRESIDENT read a paper on Perfusion of the Frog's Heart with Nicotine. He said that hitherto nicotine effects on the heart were chiefly investigated by dropping on the drug diluted without neutralisation. The results of perfusion after neutralisation were much more reliable; and this was the method employed in these experiments. Nicotine acted on nerve and on muscle, at first exciting and then depressing. The pure accelerator fibres were first stimulated, and in the fresh heart this acceleration was generally accompanied by increased tonus. Later the accelerators were depressed as shown by negative response to stimulation of the sympathetic, which prior to nicotine caused acceleration. The inhibitor mechanism was next excited, causing a slowing of the rate and cessation of beat with 0·2 per cent. solution, the heart remaining quiescent during one to three or four minutes. The purely augmentor fibres were excited early by nicotine, but this effect was best revealed after the stimulation of inhibitors had passed off. If the tone of the augmentors was increased by artificial stimulation before the drug, then the increase in force of the beat caused by this was very great. It had been shown by a simple device that the heart could perform more work in this phase, taking an augmented inflow comfortably and expelling it against increased resistance. Atropine did not counteract nicotine slowing. Atropine was said to paralyse the vagus endings in doses of 0·001 mg. or over. Amounts much greater than this were perfused for some minutes prior to nicotine perfusion, but without affecting the inhibiting action of the latter; therefore, it was probable that nicotine excited the post-ganglionic fibres of the vagus, just as it excited post-ganglionic accelerator fibres. A phenomenon of much interest observed frequently in the experiments was reversal of the heart beat by nicotine. The ordinarily subordinate mechanism of the ventricle was stimulated by the drug to predominance, so that the ventricle led the cycle. This might occur with or without cessation of the auricle beat as a preliminary, but the auricle-ventricle interval had been seen frequently to become shorter before reversal set in. It was also shown that a block could be temporarily broken down by nicotine, a 2-1 rhythm being converted to 1-1. Its action on the muscle connecting auricle to ventricle pointed rather to Englemann's view of a dromotropic delay in the impulse from above (lowered conductivity) than to the De Boer view of a prolonged refractory phase in the ventricle. Numerous graphic records illustrating the above points were shown.

Dr. F. W. LAMB gave an account of the various histological methods used in the study of fat globules in cells and discussed the modification of fatty compounds in their passage through the intestinal epithelium. He believed that all fatty bodies, with the exception of triolein, underwent an alteration or partial specialisation in the epithelium.

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LONDON DERMATOLOGICAL SOCIETY.—The annual meeting of the above society was held at St. John's Hospital for Diseases of the Skin on June 19th, the President, Dr. W. Knowsley Sibley, being in the chair. The honorary secretary presented the annual report and said that the council were happy to record a successful year. The numbers had increased considerably; three new life fellows, 30 fellows, four members, and two associates had been elected during the present session. The officers elected for the ensuing year were Captain W. Griffith, R.A.M.C., President; Dr. Morgan Dockrell, honorary secretary; Dr. Knowsley Sibley, honorary treasurer. A clinical meeting followed.

# Reviews and Notices of Books.

*Obstetrics: Normal and Operative.* By GEORGE PEARLA SHEARS, B.S., M.D., Professor of Obstetrics and Attending Obstetrician at the New York Polyclinic Medical School and Hospital. With 419 illustrations. London and Philadelphia: J. B. Lippincott Company. 1916. Pp. 745. Price 25*s.* net.

THE author has added this work to the already large number of text-books on the subject of Obstetrics, because he considers that most obstetric works contain too much irrelevant matter and too little about the practice of obstetrics. The book is based upon his experience in, and teaching at, the Cornell University Medical College and at the New York Polyclinic. With much of the author's teaching we are in complete agreement, but on some matters we hold different opinions in common with many British obstetricians, we feel sure. With the great importance of avoiding vaginal examinations and performing more frequent abdominal palpation we cordially agree. At the same time we think that in carrying out the latter manœuvre the advice to use the tips of the fingers and not the palms of the hands is quite wrong. The formation of the ring of Bandl, quite rightly according to English teaching, is attributed to excessive retraction of the uterus, but when the student is further told that the ring of Bandl is not present in tonic contraction of the uterus we entirely disagree. Dr. Shears appears to us to confuse the retraction ring and a contraction ring—two different conditions. The important clinical difference between secondary inertia of the uterus and tetanic contraction is not pointed out clearly. The teaching that the best method of treating an unreduced occipito-posterior presentation of the head may be to practise version, even when the head has passed the brim but is arrested in the pelvic cavity, or, failing this, the suggestion to rotate the head with the forceps rather than to carry out manual rotation, is contrary to the accepted practice in this country. The author, however, says that he has found rotation with the forceps easy and successful.

Dr. Shears maintains that clear and correct descriptions of the treatment of fœtal asphyxia are rare, and that some writers seem to have no positive opinions at all upon the subject. The description furnished in this book is not, however, by any means perfect; the fact that asphyxia pallida is really due mainly to shock, and that the chief danger is the heart failure which is present, is not stated—an important matter which in any description of this condition requires particular emphasis, since it forms the key to all successful methods of treating asphyxia pallida. In this section some very interesting details are given of the effect on the fœtus of oxygen inhalations by the mother, and the benefit to be derived from them is pointed out.

The book is in many ways a good one and should prove useful to the student. It is, however, somewhat spoilt by the slighting manner in which the author constantly refers to the writings of others. Many of his strictures are not deserved, and we can only conclude that he has not a very wide acquaintance with the best text-books of obstetrics in the English language, many of which are extremely practical as well as quite well written.

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*Commentaires de la Faculté de Médecine de l'Université de Paris (1395–1516).* Publiés avec une Introduction et des Notes par le Dr. ERNEST WICKERSHEIMER, Bibliothécaire de l'Académie de Médecine. 4to. Paris: Imprimerie Nationale.

IN a large quarto volume of some 561 pages the librarian of the Académie de Médecine of Paris, Dr. Ernest Wickersheimer, has edited the "Commentaires de la Faculté de Médecine de l'Université de Paris" from the year 1395 to 1516. The Commentaires comprise 24 volumes in all and date from Nov. 6th, 1395, to November, 1786. Described in a few words, they constitute the administrative history of the Faculté de Médecine as recorded by successive deans. The origin of the faculty is not easy to trace, for though, according to the chronicler Guillaume le Breton, the art of healing and the care of the body were taught in Paris as early as the year 1210, *physici* or physicians are not

mentioned in documents until 1213, when, in an episcopal charge concerning the *licence* of the University of Paris, theologians, *décretistes*, artists, and *physici* are separately enumerated. In 1251 the University of Paris begins to employ the word *Medicina*.

In the fifteenth century, which is the period mainly covered by M. Wickersheimer's learned labours, medical education in the University is already being pursued with the help of certain books and by disputations. Every Bachelor is required to go through four courses, the first of which must be begun a fortnight after he has been received. A course is taken up with the study of a given book, such as the Aphorisms of Hippocrates, the Viaticum or Book VII. of Isaac Judæus, who died in the tenth century, Gilles de Corbeille on the Urine, the works of Rhases, Avicenna, Galen. It is curious to note that though the study and criticism of books were thus insisted on, there were only some 38 works on medicine and surgery in the library of the Faculty in the years between 1395 and 1516. These were manuscripts on parchment, some of them illuminated, and probably of value, for one was in pawn in 1395 *chez Guillaume Boucher*. Thirty-eight volumes could only necessarily go round among a very small circle of readers. Disputations were carried on by the Masters in Medicine and respectfully and quietly listened to by the Bachelors. One of the subjects was "Utrum rerum naturalium, non naturalium et preter naturalium, cognitio medico sit necessaria?" These disputations were called *Quolibets*, not because they were on any subject, but because the answer was Yes or No. Theses were written then as now, and a candidate for the licence might choose his examiner, who was probably his own teacher, but he had two assessors, and the transaction or bargain had to be above board—"sine fraude et deceptione."

The Medical Faculty comprised four grades—students, Bachelors, Licentiates, and Masters or Doctors. Students were not as young as most of the University men of that age, for they were required to pass four years in the study of medicine before obtaining the baccalaureatship unless they had previously graduated in arts, when the course was three years. In 1426 Pope Martin V. decreed that the medical licence could only be obtained by graduates in arts. A high standard of literary culture was thus ensured, though the science of the time had little value.

M. Wickersheimer's monumental work has been published under the auspices of the Ministry of Public Instruction and Fine Arts. It is one of the "Collection de Documents Inédits sur l'Histoire de France." The librarian of the Académie de Médecine is to be congratulated on his erudition. He is probably—to judge by his name—one of that long line of brilliant Alsatians who have adorned French science since the days of Adolphe Wurtz and Gerhardt. We understand that he is now at the front helping to win back those lost provinces that have contributed so greatly to the civilisation of France.

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*Reports of Inquiries and Appeals under the National Health Insurance (Medical Benefit) Regulations (England), 1913.* Vol. I. London: H.M. Stationery Office. 1917. Pp. 163. Price 9*d*.

THE Insurance Commissioners have initiated a series of reports of the inquiries instituted by them under the medical benefit regulations, and these reports should prove very useful in connexion with the various questions which, in the first instance, are the subject of investigation by Insurance Committees and their subcommittees. The decisions which the Commissioners are called upon to give affect a wider and more varied range of subjects than might at first be supposed. The development and enunciation of the principles to be applied in cases where medical men, druggists, insured persons, and Insurance Committees find themselves at variance should tend to diminish the number of disputes arising as well as to the speedy and satisfactory disposal of them.

A considerable proportion of the cases referred to the Commissioners naturally bring under their notice comparatively simple questions with regard to which, when the facts have been established, there can be little doubt as to the course to be pursued. Among cases of this kind may be placed many of those in which a medical practitioner's removal from the panel is sought for upon the representation of an Insurance Committee. Such cases are quite rare when the large number of practitioners upon the panels, and the varying circumstances in which their lives have been spent, are taken into consideration. When a medical man is proved upon more than one occasion to have been in a state of intoxication when visiting his patients (Part I., Case VII., p. 13; Case XIII., p. 24), to have habitually left patients to be treated by an unqualified assistant (Part I., Case XVI., p. 34), or to have been the putative father of the children of a patient (Part I., Case X., p. 19), little remains to be said. His retention upon the panel would neither be desirable in the interests of his profession nor of his patients, and his case is as simple as those affecting druggists, in which fraudulent overcharges are proved to have been made, supported by proof of alterations deliberately made by the druggist in the doctor's prescriptions (Part II., Case V., p. 64; Case VI., p. 67; Case VII., p. 69). Other subjects are of greater complexity. Among these may be placed questions of proposed surcharge on the ground of alleged extravagant prescribing. Twelve appeals relating to this very important matter are included, and the fact that the decisions in this class of case involve questions of principle, and should serve as precedents, is emphasised by the use of headnotes summarising the conclusions arrived at. Thus we read (Part III., Case IV., p. 80) that—

> Statistical evidence does not suffice, standing alone, to justify the inference of extravagance, but in conjunction with evidence derived from the character of the prescriptions themselves, and in the absence of satisfactory explanation by the doctor, it may assist both in establishing the fact of extravagance and in enabling a reasonable estimate to be made of the additional cost thereby caused to the Drug Fund.

Naturally it is in cases where principles have to be sought for, and by which precedents of importance may be established, that differences of opinion may arise as to the correctness of the decision arrived at. In one such instance (Part IV., Case II., p. 123) a panel doctor was requested by a patient's mother to obtain a second opinion, a step which he considered unnecessary, and which in the end only served to confirm his diagnosis and treatment. On the ground that the consultation was unnecessary, and that in attending it he was acting on behalf of the patient's mother, the panel practitioner charged a fee. The Insurance Committee decided that the charge was a breach of the doctor's agreement, and the Commissioners rejected his appeal, holding "that as the appellant had, in fact, attended the consultation his action was for the general benefit of the patient, and in view of the mother's anxiety the consultation was not unnecessary." The question of fees for attending consultations in the circumstances indicated is likely to be raised more frequently when the provision of the opportunity for consultations arouses more frequent demand for them among insured persons, and no doubt the difficulty will then be more fully provided against. There is certainly an element of hardship in a case which compels a medical man to attend gratis a consultation considered by him unnecessary, with the alternative of absenting himself when another medical man seeks information as to the patient's condition and treatment.

The general impression conveyed by a perusal of the Commissioners' decisions, and of the principles upon which they are based, is one of an industrious endeavour to sift the cases before them with thoroughness and to arrive at just conclusions. This cannot always have been easy, for the questions raised have had many and varied aspects. The difficulties have arisen out of the administration of a complicated system of a novel character, necessitating the breaking of fresh ground and the creating rather than the following of precedents. Whatever view, however, may be held as to the merits of a particular decision or decisions, there can be no question as to the desirability of assembling and publishing such decisions in the convenient form adopted.

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## JOURNALS.

*La Chirurgia degli Organi di Movimento.*—All concerned in its production are to be congratulated on the first number of this new Italian surgical periodical. It is published by L. Capelli, Bologna, and the agents for this country are Messrs. Williams and Norgate. The first article, "La Mobilizzazione Chirurgica delle Anchilosi del Ginocchio," is from the pen of the editor, Dr. V. Putti, professor of orthopædics in the University of Bologna. Dr. Putti discusses very fully the operative treatment of bony ankylosis of the

knee by the latest methods, describes in detail those adopted by himself, and gives histories of cases in illustration. One of the cases cited is of extraordinary interest. The patient, a field labourer, was operated on for bony ankylosis of the knee in 1911. The method of operation adopted was that described by Dr. Putti in the *Archivio di Ortopedia* in 1913.[1] The ankylosis was broken down and the joint resected. The condyles of the femur were covered with pads of the fascia lata dissected from the patient's thigh, in the hope that a fresh synostosis would thereby be prevented, and that the aponeurotic tissue might take a useful part in the formation of a new joint. The result as regards mobility was not satisfactory, and three years after the first operation the patient requested further surgical intervention. Dr. Putti performed a second resection and found a condition of the joint which showed that the imperfect result of the first operation was due to its too conservative character and in particular to the non-removal of the crucial ligaments and the cartilage covering the articular surface of the tibia. The point of chief interest, however, is the condition of the covering of fascia lata which had been applied to the condyles of the femur three years before. This was found living and firmly adherent to the bone. It was removed in the course of the fresh resection and submitted to a histologist for examination. Under the microscope, while its original character, of an aponeurosis, was plain, it was seen to have undergone a considerable metamorphosis towards cartilage. The very full and interesting report of the histologist concludes as follows: "In conclusion, the fascia interposed in this patient between two osseous articular surfaces is living and is undergoing a cartilaginous metamorphosis which tends to reproduce the normal morphological conditions of the joint even in detail." Dr. Putti gives a very full and clear account of the technique he follows in his resections, and accompanies it with a series of admirable illustrations. Clinical histories are given of six cases of resection after his method. In the fully successful cases the mobility, strength, and general usefulness of the new joint are quite extraordinarily good.—The three remaining articles in the present number contain much that is of interest to orthopædists. Dr. Vaughetti writes on the present condition of prosthetic surgery ("Progressi Actuali della Plastica Cinematica"), while Dr. Delitala discusses the normal and pathological anatomy of the skeleton of the foot, with special reference to wounds, and Dr. Serra contributes a histological study of transplantation of bone in the human subject. A word of praise must finally be given to the typography of this number and to the excellence of the numerous illustrations.

*The Military Surgeon.* Washington, D.C. May, 1917.—The number opens with an appreciation of the Carrel-Dakin method of wound sterilisation, "the most valuable advance in the treatment of infected wounds" learned in this war, by Colonel William H. Arthur, Medical Corps, U.S. Army, Commandant of the Army Medical School. He notes the essentials to be, first, thorough opening and drainage, cleaning of the wound from foreign bodies and dead tissue, the complete arrest of hæmorrhage; then the continuous bathing of the wound, every nook and cranny of it, with an efficient, non-irritating bactericide. He concludes that the chemical skill of Dakin assisted the mechanical dexterity of Carrel.—Colonel Louis La Garde, Medical Corps, U.S. Army, retired, tells the civil profession they should join the Army now to help, and not delay till they can get the particular sort of work they prefer. He tells how Dr. Nicholas Senn, of Chicago, designated in 1898 as the chief operating surgeon of all the armies in the field, came to Cuba after the fighting was over and the wounded had been sent home, but, having no operations to do, was content to take 70 Cuban refugees and clean up a burned town to make a site for a hospital. That was the work his country needed done. That was the work Senn was ready to do.—Surgeon (Fleet-Surgeon that is) W. M. Garton, U.S. Navy, describes how the food of the men of the fleet is inspected in a United States dockyard. The Fleet-Surgeon (Principal Medical Officer of the Fleet) is responsible for the quality of the food, assisted by the Fleet pharmacist. He lays great stress on regular hours for supply to give time and light for inspection. Bread, milk, and apparently meat are inspected daily, clams, oysters, and yeast on Fridays, fowl and cake on Saturdays or the day before holidays, and ice-cream on Sundays. We hope the fowl, cake, and ice-cream, which appear to furnish forth the Sunday dinner of the U.S. Navy, may be found on this side not to fall below the Transatlantic standard.—First Lieutenant W. E. Fitch, Medical Reserve Corps, U.S. Army, discusses rations for boys in military training camps. He takes 4000 as the number of calories required by a man at active work, and, on the authority of Du Bois (Russell Sage Foundation), demands for boys 25 per cent. more, 5000 calories, to satisfy the ravenous appetites which result from the energy expended in exercise and growth. This food he supplies particularly in whole-wheat bread, eggs, meat, fresh vegetables and fruits, observing that long-cooked food, tinned meat, condensed milk, &c., have lost their vitamines, while he puts white patent roller process flour on the same level as polished rice. He gives his boys in camp meat at every meal, yet only about half a pound a day, but the calories he gets mainly out of cereals, potatoes, beans, and, of course, in America, pie.

*Archives de Médecine et de Pharmacie Militaires.* Tome LXVII., No. 1. January, 1917. Paris: L. Fournier.—In an article on Fractures of Bones, and especially Displacements of the Fragments, caused by Firearms, by Ed. Delorme, Médecin Inspecteur Général, Membre de l'Académie de Médecine, profusely illustrated by sketches taken from radiographic plates, the author states that the experiments concerning the result of gunshot wounds made on the cadaver by himself and Captain Jaricot in 1881 had enabled him to classify the principal types of fractures of the diaphyses and epiphyses of the bones. It appears that such a study gives often more precise results as to the lines of fissure than radiography owing to the super-position on the plate of both surfaces of the bone. These anatomical studies, supplemented by the examination of thousands of wounded men and of radiographic plates, show that: 1. The German S bullet acts similarly to its predecessors in causing the various lesions of the bones. 2. That shrapnel bullets give simpler types owing to their lower velocity. 3. That splinters from shells, grenades, &c., give types similar to those of shrapnel bullets with a few differences, such as (*a*) fractures without solution of continuity of the bone, which may or may not be comminuted; (*b*) fractures of simple types, with solution of continuity; (*c*) fractures of a complex type, more or less comminuted, with solution of continuity. He enunciates the two following laws: (1) A fracture of the diaphysis is less extensive longitudinally as the velocity of the bullet increases; but (2) as a rule, the fracture is more extensively comminuted as the velocity of the projectile is augmented. Inspector-General Delorme points out that trench warfare, with its shorter range, provides examples of the latter type of fracture more frequently than did fighting in the open during the earlier days of the war, and then deals in detail with all the fractures of the bones of the upper extremity, commencing with those of the fingers and finishing with the bones of the shoulder-joint. All these lesions conform to the following category: (1) abrasions or contusions with or without fracture by the contact of the bullet or splinter; (2) deep pitting of the bone; (3) grooving or guttering of the bone; (4) perforation, with the formation of large splinters, sometimes wedge-shaped, or the bone may be extensively comminuted and reduced to small fragments held together by the periosteum. The various types of callus are mentioned, and especially callus formed after gunshot wounds of the shoulder, where it is often extensive owing to the many centres from which ossification may proceed. Displacements of the bones are described, such as those of the forearm, arm, and shoulder, and M. Delorme insists upon the necessity of great care being taken to correct any vicious position. He has seen marvellous recoveries of joints when these have been implicated in serious lesions owing to the great care taken in rectifying faulty positions and the use of suitable appliances until healing has taken place. The author is not favourably inclined to primary excisions of joints unless the lesion is limited to the immediate neighbourhood of the joint and below the epiphyseal line, for if the diaphysis be implicated the surgeon may remove too much bone in his endeavour to go beyond all damaged portions of bones. Pseudo-arthrosis is found to occur most frequently after fracture of the radius alone, or ulna alone.

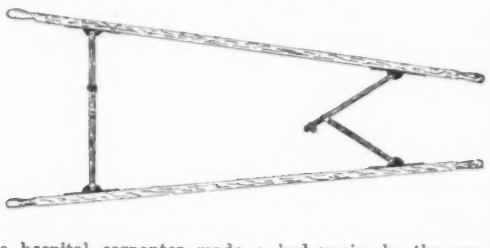
[1] L'interposizione di lembi aponeurotici liberi nella mobilizzazione chirurgica delle anchilosi e delle rigidita articolari.

*Journal of the East Africa and Uganda Natural History Society.* March, 1917. Longmans, Green, and Co. Price 5*s.* 4*d.*—The relation of climate to health gives particular interest to the several articles which have appeared from time to time in this journal on desiccation or the gradual drying up of rivers and lakes in Africa. In the current issue Mr. R. L. Harger gives a summary of observations on the subject made by older travellers—namely, Mr. G. W. Stow (*circa* 1843) and Livingstone—and records his own observations made between the years 1894 and 1906. A review of the facts stated show that the inland plateau of Africa up to the Equator can be divided roughly into three lateral zones: (1) From about the latitude of the Orange River to the Zambesi, where vast rivers and lakes have disappeared, leaving mere remnants, such as Lake Ngami; (2) from the Zambesi to the latitude of Lake Mweru, where large river systems and huge lake areas are in process of being drained; and (3) the equatorial belt, excluding Tanganyika, where the climate, rainfall, and vegetation are such, together with abundance of water, as to warrant the supposition that drainage and desiccation have not yet commenced.—A short note on Albinism in East Africa, by Mr. S. L. Hinde, expresses the opinion that possibly a larger percentage of albinos are born to negro parents in tropical Africa than is born to European parents in Europe. These children are seldom seen by Europeans, as many tribes destroy them at, or soon after, birth, and those that are allowed to survive are difficult to rear. Under the title of "A Rare Forest Francolin," Dr. V. G. L. van Someren, the honorary secretary of the society, describes the *Francolinus lathami schubotzi*, and a beautiful coloured plate shows the male and female of these birds.

# New Inventions.

## A BED-CARRIER.

AT this hospital last summer on fine days patients were carried out of doors in their beds. This necessitated carrying the bed and patient 100 yards and up and down a broad flight of ten steps. Four strong men were required to carry a single bed, and for four men it was a considerable exertion. From unequal lifting it was a strain on the bedstead. The bedsteads are light, of the ordinary hospital pattern, measuring 6 ft. 4 in. by 3 ft. 3 in.



The hospital carpenter made a bed-carrier by the use of which two men could do the work of four with less exertion. It is a simple contrivance. No claim is made for originality, but in view of its convenience its description is made known.

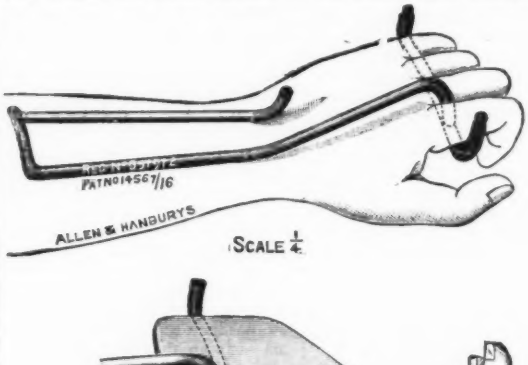
It consists of two stretcher poles, each measuring 104 × 1¼ × 2½ inches, their ends fashioned to form handles (see figure). The poles are joined at a distance from either end, corresponding with the head and foot of the bed, by a jointed flat iron bar, one-half of which overlaps the other at the central join. The longer half is turned over at its end to grip its fellow, thus preventing over-extension. Each half has a hinged attachment to the pole to allow of the two poles being collapsed together. The carrier in use, when the jointed bars are extended, lies under the bed frame. Four buttresses on the poles rest hard up against each leg of the bedstead to prevent the bed slipping when carried up an incline. The two jointed bars when fully extended form a rigid iron bar which prevents collapse of the poles when a man at each end lifts the pole handles to carry.

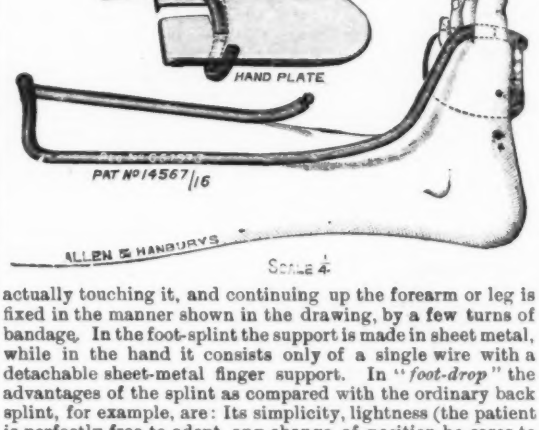
A. GEOFFREY EVANS,
R.N. Hospital, Mount Stuart. Temporary Surgeon, R.N.

## WRIST- AND FOOT-DROP SPLINTS.

THE following is a description of two splints which have been found very useful in the prevention and treatment of "wrist-drop" and "foot-drop" in cases of injury to muscle and nerve. They have been designed by Miss Wharton, one of the dressers in the Hôpital Temporaire d'Arc-en-Barrois (Haute-Marne).

The splint is made of iron wire, strong enough to support the limb but capable of forcible bending to fit it to the peculiarities of individual cases. It consists, as will be seen in the illustrations, of a support on the palmar or plantar aspect of the limb, attached to a wire, which, passing between the index and middle fingers or great and second toe, crosses the dorsal surface of the hand or foot without




actually touching it, and continuing up the forearm or leg is fixed in the manner shown in the drawing, by a few turns of bandage. In the foot-splint the support is made in sheet metal, while in the hand it consists only of a single wire with a detachable sheet-metal finger support. In "*foot-drop*" the advantages of the splint as compared with the ordinary back splint, for example, are: Its simplicity, lightness (the patient is perfectly free to adopt any change of position he cares to without suffering the restraining influence of the heavy posterior splint), ease of appliance—e.g., a few turns of a bandage on the leg only, which renders it capable of appliance in spite of wounds, adaptability to cases, absence of any risk of pressure sore in the heel region and possibility of walking on crutches while wearing the splint. In "*wrist-drop*" its light weight is again the most commendable attribute, and the fact that the splint is fixed by a bandage on the forearm only, leaving the hand free and enabling the fingers to be used while the wrist is supported in a position of dorsiflexion to the amount desired for the case. If it is thought desirable to keep the fingers in an extended position the detachable finger support is used. If it were objected that there were pressure on the affected muscles, which is almost inconceivable in such a light apparatus, a modified form in which the arm-piece is applied to the anterior surface of the forearm is made. These splints are in constant use in the Arc-en-Barrois Hospital and have been found very effective in the prevention and treatment of foot- and wrist-drop and after nerve sutures. They have also been commended and adopted by certain French surgeons of other hospitals.

The splints are made and supplied by Messrs. Allen and Hanburys, Limited, 48, Wigmore-street, London, W., and catalogued by them as the "Wharton's Splint."

A. F. SINCLAIR,
Surgeon, Hôpital Temporaire, Arc-en-Barrois.

# THE LANCET.

*LONDON: SATURDAY, JUNE 30, 1917.*


## Mesopotamia: Then and Now.

THE Report of the Commission appointed to inquire into the Operations of War in Mesopotamia was presented to Parliament on Tuesday last, and constitutes one of the most tragic confessions of official muddle known to our history. The Report strikes us as moderate although so outspoken, for indeed the political and military miscalculations which led to the first advance on Bagdad, the siege of Kut, and the surrender of more than a division of first-class troops, with over 20,000 casualties, are now seen to have been gross. Coming to the breakdown in the medical arrangements; there is published with the Report a complete endorsement of the findings of the Vincent-Bingley Commission which went out to Mesopotamia early last year to review the medical arrangements; and from these findings, which form Appendix I., as well as from the whole Report it becomes clear that at the beginning of the campaign the provision for the sick and wounded was inadequate. After the battle of Ctesiphon and during the Kut relief operations the medical arrangements entirely broke down, and Surgeon-General HATHAWAY, the Principal Medical Officer in Mesopotamia, Surgeon-General BABTIE, the Director of Medical Services in India up to June, 1915, and his successor, Surgeon-General MACNEECE, are all found to blame in varying measure, despite the splendid work, acknowledged by the Commission, of the executive and regimental medical officers. No doubt each of the high officials desired to do his best, and no doubt each of them can show that he advanced claims for attention to the needs of his department which were not attended to by military or civil authorities, but it emerges from the Report that they did not recognise the seriousness of the situation. Lieutenant-Colonel R. M. CARTER, I.M.S., the first man to report truthfully to his superiors on what was really happening, was snubbed and even threatened. This makes a sorry tale.

An officer in the Royal Army Medical Corps who uses the pseudonym "MARTIN SWAYNE," has just published a book which deserves to be widely read as a sequel to the Report. The book is entitled "In Mesopotamia," and in it he tells us of a white doorway in a yellow wall which local tradition regards as the gate of the Garden of Eden. No garden is there now, but the gate is at the junction of the Euphrates and the Tigris. The two gigantic rivers rush through stretches of land so barren that no green thing was available for our troops on the march up from the Gulf. Tinned fruits and vegetables, which should have come, failed, and the men marched day after day drawing on the mineral salts stored in their bodies, and finally upon their own lecithin, until beri-beri set in and they were invalided back again to India whence they had come. Instead of a succession of fruits in the garden for the use of man, man became himself the soil on which flourished one after another a virulent series of bacterial crops. Plague followed cholera, and malaria found a seed-bed prepared by the enteric fevers and dysentery. The water of the rivers which once flowed through the garden, making possible the leafy shade in which the LORD GOD walked in the cool of the evening, was but the vehicle of deadly germs. Under such conditions it is no surprise that the sick and wounded were "lean, gaunt, haggard skeletons, hollow-eyed, with rivulets of perspiration furrowing the dirt of their faces." The vessels in which they came down stream from the fighting above consisted of ordinary river-boats with a big barge lashed on each side, on the deck of which the men lay closely packed under a single thickness of canvas awning. With the rising humidity of evening heat-stroke was often added to the other terrors. Such were the conditions for the sick and wounded in Mesopotamia in the first half of the war, which is now completing its third year, and such they would have remained if it had not been for the tardy but strenuous application of the principles of hygiene, principles sufficiently well known before but not applied.

Whether the insanitation was due to the parsimony or the ignorance of authorities, hard to convince of the certainty of disaster entailed by the lack of hygiene, is an idle speculation. The Garden of Eden is being restored. Irrigation on a small scale is already producing more than enough vegetables to supply the needs of troops and cattle. Up and down the whole length of the river water-purifying installations have been erected, each complete in itself and providing an abundant supply of pure water for so many units. Traffic on the river for the sick and wounded is no longer a protracted torture. A fleet of hospital ships, some of shallow enough draught to ply right up into the Armenian mountains, provide all the conditions for safe and rapid convalescence. One of these river boats, which we were able to describe last week from a personal inspection, is a model of applied medicine, each several requirement having received its appropriate attention. The enormous expenditure of thought and money in the directions which we have indicated has had already obvious justification, but to the clear-sighted medical administrator the prospect of their permanence adds vastly to the interest of his work. Not only for attack and defence are these conditions essential; they are also the conditions of peaceful development. The same irrigation, multiplied a thousand times, can turn Mesopotamia once more into a fertile plain, with an annual output of cotton and of corn worth hundreds of millions of pounds. Hospital ships, no longer required for maimed and broken men, can remain as the beginning of regular means of healthy river transit. The installations of pure water will be required as the nucleus of a vast permanent source. If the new Garden of Eden is better than the old, it may be because the medical profession has eaten to some purpose of the fruit of the tree, and turned to advantage its knowledge of good and evil, untrammeled by prejudice and vested interest.

## The Day's Work and the Cost.

THE Cavendish lecture delivered before the West London Medico-Chirurgical Society by Captain ANDREW MACPHAIL, of the Canadian Army Medical Corps, Professor of the History of Medicine in McGill University, Montreal, will be found printed in full on other pages. Captain MACPHAIL has drawn a vivid picture with a sincere and accomplished pen of the work of the medical men at the front, choosing, as his example of "A Day's Work," the advance of the Canadian Corps at Vimy Ridge on Easter Monday, an advance which was carried out with brilliant success, the result of organised work by day and night through weeks and months of methodical preparation. On that day the Canadian Army Medical Corps played a part carefully rehearsed beforehand with the other actors in the great drama, and showed how ably men trained thoroughly and methodically in the hospitals of their home country in time of peace can adapt themselves, organise their methods, and apply their acquired knowledge and skill as integral parts of a vast army face to face with every death-dealing device employed by a resourceful enemy.

This is the principal lesson taught by Captain MACPHAIL in his address, but learned and eloquent man that he is, he has seized upon an unrivalled opportunity to suggest for our consideration many other matters of the first importance. We realise from his story that the work of a day to be effective, whether for a soldier or a surgeon, must be the result of training and preparation, and that even the initiative and resource which superficial observers may ascribe to natural ingenuity, stimulated by emergency in at least an equal degree, should owe origin to education and cultivated habits of forethought—habits which seem to have been considerably wanting in those responsible for the initiation of the Mesopotamia campaign. Captain MACPHAIL describes how on one occasion at the Western front an apparently ample supply of blankets for an expected flow of wounded into a dressing station was suddenly rendered insufficient by bitter wind and driving snow. Within an hour, however, 600 additional blankets were assembled and transported to where they were needed. Captain MACPHAIL adds that how this was done "does not matter," but we are free to conjecture that someone knew that something of the kind might occur, and had kept ready at the back of his mind details of how and where fresh blankets might be got, if the necessity for them should become urgent. Resource and readiness for emergency, as rendered possible by the medical man's early training, are not, however, only called for by such emergencies as a snowstorm. One of the side lessons taught in the lecture referred to is the fact that, whatever red tape may necessarily associate itself with all military organisation, no unalterable routine can regulate the arrangements to be made before a battle for the reception of the wounded, any more than the treatment of individual cases when they arrive can be laid down beforehand. Captain MACPHAIL says, speaking of the preparations made from early in February onwards for the battle of Easter Monday, "No one system will suit all engagements, and the system must be devised in case of defeat as well as in victory"; and he adds later, "I cannot insist too strongly that medical arrangements must be devised anew for each action; they vary with the plan of battle and must be modified as the battle proceeds." Throughout the war, in the exhibition of resource based upon training and knowledge, Captain MACPHAIL shows us, the Royal Army Medical Corps, with its ranks filled and refilled by men of varying degrees of scientific attainment, torn from the various branches of civil practice, has won high distinction. "It has yielded an army without sickness." The words are those of Captain MACPHAIL, who has never seen a case of typhoid at the front; and he speaks of London as "a place where men contract venereal disease," whereas our army, fighting and resting alternately in France under medical supervision, is free from it—the first army that ever could be so described in such circumstances. It is with little wonder, then, that we learn from the utterance of Captain MACPHAIL that "by the miracle it has performed of keeping the Army fit the consideration accorded to the service is unbounded."

But if the medical profession has gained distinction for itself by the manner in which it has accomplished its work in the war, most assuredly the cost of its success has been heavy. A recent Ministerial answer in the House of Commons told us that, excluding the figures which are not obtainable as to medical officers from oversea, the losses of the medical profession in Regular and Territorial officers have amounted to 137 killed in action, 58 dead from wounds, and 62 from disease, 707 having been wounded. How many may yet be added to the total of those who have lost their lives it would be rash to estimate even roughly, and none can reckon how many of those described as wounded have been permanently incapacitated from the pursuit of their professional careers. Those who have fallen have paid in full the price which war exacts from the patriot. They include among their number young men of high capacity whom a future generation might have seen taking their places as eminent figures in the world of surgery and medicine. They include many who would have served their fellow-men usefully and honourably, if without fame, and some others for whom the future might only have had in store worldly disappointment. All these, however, are now equal in the fact that they have died upholding on the battle-front the traditions of the profession of medicine which never before in its history has had so great an opportunity for showing its zeal in the cause of country and fellow citizen, and which has so manfully seized the chance. Let us see that in death they are not forgotten either by their colleagues or their country. When honourable mention is made of the achievements of medical and surgical science in the great war—and the records of that work will surely constitute a monument more enduring than brass—let the names of those be recalled who fell while tending the wounded and

the dying within range of the guns. The debt to them is one which in some measure can be repaid, for in not a few instances they will have left dependants whose mourning for their loss will be rendered more bitter by straitened circumstances. These will need our aid for many years to come, and a generation not yet grown to manhood and womanhood will have to extend a helping hand to some of them, and assist them to win independence for themselves. Meanwhile, as Captain MACPHAIL says, the end is not yet, nor is it even in sight, and the medical profession will continue to face the day's work from day to day, not reckoning too closely the cost in toil and money loss, but remembering those who have paid their share in the sacrifice of their lives.

## Man Power and Medical Re-examination.

IN the House of Commons sitting as a Committee on the Army Estimates, Mr. PRINGLE, the Liberal Member for North-West Lanarkshire, moved last week a reduction in the vote for the War Office of £100 in order to call attention to what he termed "the scandal in connexion with the medical re-examination of discharged and rejected men." Mr. PRINGLE spoke at length and gave numerous examples which he considered formed a proof that, to quote his picturesque language, "the halt, the lame, the blind, the mute, the mad, and even the dead" had been summoned before the examining boards set up under the Military Service (Review of Exceptions) Act. Mr. PRINGLE was supported by Sir GODFREY BARING, the Member for Barnstaple especially bringing to the attention of the House examples of what he described as the insolent attitude of the military medical boards towards those submitting themselves for re-examination. The Under Secretary for War made a carefully considered reply, in which he admitted that under the Act whose working was being criticised some 950,000 men might be called upon for medical examination in the hope only of obtaining 120,000 recruits, half of whom, it was anticipated, would be placed in Class A. These official figures make it perfectly certain that the working of the Act was bound to be intensely unpopular, and that it would necessarily be attended with many cases of disappointment and hardship; but Mr. MACPHERSON was able to show that much of the criticism of his department was based upon an inability to comprehend the composition of the Army of to-day, and to appreciate the fact that it required one and a half men behind the lines to keep one man in the trenches, so that the majority of men who were called up would be required rather in work similar to civil employ than actually for fighting. If the India Office and the Government of India had had sufficient imagination to see this much in 1915, the disasters of the Mesopotamia campaign might have been avoided. Mr. MACPHERSON also made it clear that men who had served abroad and had been discharged from the Army for sickness or wounds, and who now come in under the working of the new Act, will be finally discharged.

Mr. ASQUITH adduced from the result of the appeals made to the County of London Tribunal during nine months that the work of medical boards displayed too large a margin of error, and thus gave authority to that aspect of the debate which reflected more upon the medical profession as recruiting officers than upon the administration of the War Office. In fact, the medical profession were placed by the debate in the unpleasant position, and not for the first time, of being, on the one hand, the objects of criticism, and, on the other, the bulwark behind which those criticised were sheltering themselves. We do not for a moment suggest that no errors in diagnosis have been made by military medical boards, but in spite of the evidence of the post-bags of Members of Parliament, we make bold to say that the margin of error has not been great, while it has grown steadily less. And has there been no reason entirely outside the discretion of the medical profession why certain of these errors have occurred? From all over the country, from all sorts of speakers, and in journals of every political and social complexion we have learnt that a large number of men, who would have been adjudged first-class fighting material, secured early exemption from service in the Army, leaving the medical boards to exercise their judgment upon a population which was thus lowered in its physical standard. Any percentage of error which has occurred must certainly have been increased by this factor. Again, certain of the cases which have given rise to the most distinct feelings of injury among those who have undergone re-examination have been due to the raising of their class as a recruit. But the system of classification had no medical origin. It was devised for military convenience, and recruiting medical officers have to exercise their judgment as best they can in conforming with its pattern. This is a point which the critics of the medical profession might once and for all be asked to remember.

The debate in the House of Commons on the Military Service (Review of Exceptions) Act was obviously political in its bearing. We are only concerned to place before our readers the medical aspects of the situation. The Act was considered necessary by the Government because there was an undoubted leakage which, in the interests of the country, ought to be stopped. It was bound to be an intensely unpopular measure, and every medical man knew that it would lead to many hard cases and much difficult and delicate exercise of judgment and diagnosis. In these circumstances the military medical boards appear to us to have discharged their painful and difficult duties with care and conscientiousness. We are perfectly aware that there must have been errors, but the errors, like the many cruelly hard cases, were produced by the provisions of the Act and not by the slackness or ignorance of the medical profession. Those who have criticised the medical profession most strictly are the least likely to possess accurate statistical information as to the percentage of mistakes which have been detected. A Parliamentary Committee has been appointed to examine the working of the Act.

# Annotations.

"Ne quid nimis."

## PERTUSSIS VACCINE.

THE employment of a vaccine in the treatment of whooping-cough is still on its trial and a large amount of work on the subject has recently been done at the whooping-cough clinic of the New York Department of Health. The vaccine has been freely supplied by the Department to practitioners in New York, and in a recent number of the *Journal of the American Medical Association* Dr. Paul Luttinger analyses the reports of 250 physicians who had used the vaccine. The clinical material was the average dispensary child on the East Side of the city. 952 cases treated with vaccine were compared with 149 similar cases treated with drugs; in the former the average duration of the paroxysmal stage was 37 days, in the latter over 50 days. The second week of the paroxysmal stage seemed to be the most favourable for vaccine treatment; earlier than this the vaccine sometimes did harm, while in the later weeks it was simply inert. Used as a prophylactic in patients exposed to infection, 94 per cent. escaped. Luttinger concludes that when the proper vaccine is given according to the method of the Health Department the disease is materially reduced in duration and severity, and that the results obtained warrant the routine administration of pertussis vaccine for both curative and prophylactic purposes. In the same number of the *Journal of the American Medical Association*, however, von Sholly, Blum, and Smith report a series of cases treated for whooping-cough by means of vaccines prepared from the influenza bacillus and from the whooping-cough bacillus and by a sham vaccine consisting of milk and water. They found that the results obtained by the non-specific influenza vaccine differed little from those which followed the use of the specific whooping-cough vaccine, and that the shortest cases were the non-vaccinated controls. None of the individuals inoculated with either vaccine for prophylactic purposes contracted the disease. These observers justly emphasise the great difficulty of estimating the value of any method of treatment in an illness as uncertain in its duration and irregular in its course as whooping-cough, especially when the patients are merely attending a clinic and living in their own homes, as was the case both with the series reported by Luttinger and their own. Their care in elaborating controls suggests that they feared the mothers of the patients might be, as it were, hypnotised by the new method of treatment into giving unduly favourable reports as to the severity and duration of the paroxysms. It is very much to be hoped that experiments with vaccine will be carried out on an even larger scale, and especially that its prophylactic effects will be very thoroughly tested. Infantile vaccination against whooping-cough, if effective, would save a very large number of lives even if the immunity conferred was of comparatively short duration. It is unfortunate that so little has been published on the subject in this country, and that the trials of vaccine which have certainly been made have not been reported. On the whole, results appear to have been negative, and it is possible that this may be explained by the extraordinary difference in the dosage of the vaccines supplied by firms in this country from that recommended by Luttinger. The vaccines here are sent out in doses of 5 and 10 million organisms, whereas 500 million to 10 billion were employed in New York. Admitting the great differences of opinion regarding vaccine dosage, there still seems remarkable discrepancy. The most striking observation made by Luttinger is that the presence of subconjunctival hæmorrhages in prophylactic cases which were protected by the vaccine seems to point to a specific immunising action against the paroxysms, and to the fallacy of the hitherto accepted theory that these hæmorrhages are due to the violence of the cough.

## PARALYSIS OF THE RECURRENT LARYNGEAL NERVE BY BULLET WOUND.

A UNIQUE case of traumatic lesion limited to the left recurrent laryngeal nerve, without any injury to vessels, other nerves, or vital organs, has been published recently by Dr. U. Samaja, one of the military staff of the De Amicis Hospital at Bologna (*Gazzetta degli Ospedali e delle Cliniche*, No. 8). During an attack the patient received a shrapnel bullet wound in the left clavicular region; there was but little hæmorrhage and no hæmoptysis, although he was suffering from cough at the time. The wound of entrance was behind the clavicle in the supraclavicular fossa, 2 centimetres from the sterno-clavicular articulation. The bullet could be felt immediately below the second left rib about 1½ cm. from the sternal margin. The distance between the wound and the bullet was 10 cm. and its direction from behind forwards and from left to right. The skin between these two points was absolutely normal. A radiogram showed the existence of a fracture at the sternal end of the left clavicle and swelling of the sterno-clavicular joint. The apex of the left lung was more opaque than that of the right, pointing in all probability to a peri-pulmonary lesion. Persistent vocal alteration, which supervened immediately after the patient was wounded, was shown by laryngoscopy to be due to paralysis of the left recurrent laryngeal nerve, the left vocal cord being in a position intermediate between that of phonation and respiration, and remaining stationary during phonation. Thus the projectile, either directly or from hæmorrhage, of which the peri-pulmonary opacity was the residuum, had injured the left recurrent nerve and caused the vocal paralysis without damaging the lung itself, the subclavian vessels, or the phrenic and sympathetic nerves.

## THE METROPOLITAN HOSPITAL SUNDAY FUND AND PAROCHIAL ORGANISATION.

THE claims of the Metropolitan Hospital Sunday Fund are brought forward with emphasis in the last issue of the *Hospital*. The editor lays stress upon the advantage which has already been derived in some instances from the organisation of hospital committees in individual parishes, which charge themselves with the duty of increasing the contributions of those who give to the Fund, and particularly of insuring that those who do not usually go to church on Sundays shall not forget it. It has frequently been urged in THE LANCET that those who do not attend Divine worship should contribute no less than those who do so, and that the latter should charge themselves with the duty of keeping the claims of Hospital Sunday before the former. No

doubt, however, this can be better done where the work is organised, and where families in which all are likely to be absentees are methodically canvassed and the claims of the hospitals laid before them. It is suggested in the article referred to that each parish adopting this plan should have a chairman, honorary secretary, and treasurer as permanent officers of its hospital committee responsible for the organisation of a body of workers in the cause. Perhaps it will not be too late in some places to initiate such a scheme in time to obtain a few contributions to the Fund before this year's subscriptions are sent in. At any rate the idea should not be allowed to drop, and we would add the suggestion that where there is any unreadiness on the part of those not members of the Church of England to be canvassed by neighbours representing the parish church, and associated with it, the members of other congregations should be able to organise collecting committees of their own, and thus to insure that no possible subscriber may be overlooked.

## "SILENT PERITONITIS" AND SUDDEN DEATH.

AT a recent meeting of the Société Médicale des Hôpitaux de Paris M. Jean Minet called attention to acute peritonitis as a cause of sudden death which might go unrecognised. As a rule acute peritonitis—whatever its cause—produces such disturbance that it cannot pass unperceived, and the term latent peritonitis is applied only to the early stages of chronic peritonitis. It is difficult to believe that acute peritonitis can cause sudden death, in the strictest sense of the word, without betraying its existence in the slightest manner. But this occurred in the three following cases.

A soldier, aged 46 years, who performed clerical work, was found dead in his bed at 2 A.M. On the previous day, on the visit of the medical officer, he complained of pains on micturition. "Pyuria with albuminuria" was found and rest was ordered while awaiting a complete examination of the urine. According to his comrades he did not appear ill and he worked a little though exempt. He dined as usual and went to bed at the same time as the others. It was by accident that he was found dead. At the necropsy, performed on the following day, a large green patch extended over the distended abdominal wall. The peritoneum contained about a litre of reddish fluid and was covered with false membrane of recent formation, which bound together the coils of intestine. The true pelvis was walled off by a mass of old, thick, hard adhesions which enclosed the appendix. These adhesions limited an oval orifice 6 cm. in diameter, through which coils of small intestine passed into the pelvis. On being drawn out there was found 2½ metres of intestine of the colour of wine lees covered with hæmorrhages and showing a deep groove of strangulation at each end. The other abdominal organs were congested, especially the liver and kidneys. The right kidney contained a tuberculous mass of the size of a hazel nut. The bladder was full of purulent urine.

In the second case the patient was a soldier, aged 45 years, who worked in a munition factory. He came to hospital complaining of dyspnœa and cough. Râles were heard in the chest, especially at the bases of the lungs. He was put to bed. Cupping and cardiac tonics were prescribed and towards evening he slept. He was found dead in bed next morning. This sudden death of a man who manipulated dinitrophenol aroused suspicion of pulmonary œdema due to poisoning. At the necropsy œdema of the whole of the lower limbs and hands was observed. The skin was of a deep yellow colour. The lungs were congested at the bases but not œdematous. The abdomen contained about a litre and a half of purulent fluid and a recently formed false membrane uniting the intestinal coils to one another. A large mass surrounded the cæcum and adjacent intestinal coils and united them to the abdominal wall. In the centre was the appendix divided into two parts by a sort of strangulating groove. The proximal part was dilated and contained thick pus in which floated a stercoral concretion. There were "large white kidneys."

In the third case a man was knocked down by a kick in the abdomen. He fainted, but after a little time was able to go home. After resting he felt quite well, and went to the police-station to complain. On the following day he went to work and did not, according to his wife, complain of any pain. On the fourth day, after some vague malaise, he vomited greenish fluid, lay down, and died in a few minutes. The necropsy showed the peritoneal cavity full of fæcal matter and puriform fluid, and two perforations of the small intestine which had all the characters of a burst; the mucous membrane was everted, the orifice was irregular, and there was slight surrounding ecchymotic infiltration. There were no pathological changes in the intestinal coats. The abdominal wall showed no signs of injury. The assailant was prosecuted but acquitted, as M. Minet could not swear positively that the kick was the cause of the peritonitis.

In these three cases the peritonitis was completely "silent" during life, and the sudden death may be described as monosymptomatic of the condition. The point does not seem to have been noticed by medical jurists.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Total Laryngectomy.*

IN a communication recently addressed to the Academy of Medicine M. Moure reports on 15 cases of complete laryngectomy performed during the last 27 months, recalling how serious an operation it has been considered for many years, the mortality having reached 95 per cent. In contrast to this high mortality all M Moure's patients, operated on for malignant tumours of the vocal organ, recovered from the operation, though not all derived permanent benefit inasmuch as in several cases the tumours recurred. A large proportion of the operations were done on very grave cases in which the new growth had already extended beyond the larynx and invaded the neighbouring tissues—œsophagus and pharynx. As regards the technique of the operation, M. Moure does not consider it necessary to "exteriorise" the trachea to ensure free breathing and prevent entrance of blood into the respiratory passages. In his opinion this course prolongs unduly an operation already long. His own procedure includes the following stages. Gauze is packed between a cannula placed in the trachea and the wall of the trachea. After removal of the larynx the wound is flattened out so as to diminish as far as possible the slough following the operation. Afterwards the wound is dressed two or even three times a day. In order to avoid the chief danger—viz., the risk of relapse—the operation should be done early while the malign tumour is still encapsuled in the thyroid sheath.

*Heliotherapy in the Treatment of Gunshot Wounds.*

M. Cazin, in demonstrating before the Academy of Sciences the results of the sun cure of war wounds obtained during the summers of 1915 and 1916, gave his opinion that the method of Rollier should be widely introduced in the hospitals, as it could be carried out everywhere with no special installation. In a certain number of cases of fractures complicated with suppurative arthritis, in which amputation appeared to M. Cazin inevitable, a fairly rapid and complete recovery was obtained by the sun treatment. An extension of its judicious employment should tend to shorten the treatment in a great number of gunshot wounds, and diminish the proportion of the infirm and unfit.

*Radio-stereoscopy.*

War surgery is likely to benefit materially by a new discovery, brought to the notice of the Academy of Sciences by Professor d'Arsonval—viz., the radio-stereoscopic apparatus of Dr. Lièvre, by which a direct stereoscopic view is obtained of images projected on the screen. The surgeon is thus enabled to see projectiles in their actual perspective, to ascertain their relation to each other, and appreciate the distance separating his instruments from the projectiles. The action of a simple reverser also permits him without moving the patient to obtain a stereoscopic view from in front or from behind. The apparatus is eagerly awaited by the field ambulances.

*Resection of the Hip for Arthritis following Gunshot Wounds.*

M. Potherat communicated to the Society of Surgery a note from M. Guénard, in which the latter affirms his belief in the safety of resection of the hip, even when in a septic

condition, since his results on a series of eight cases showed 100 per cent. of recoveries. All the cases operated on arrived in a condition of acute osteo-arthritis, one of them three days, another five days, up to 40 days after infliction of the wound, in several cases symptoms of gangrene being already present. His chief concern was always the gravity of the infection. The head and neck of the femur, including the great trochanter, are removed, retaining, whenever possible, the small trochanter. Posterior access appears the more convenient. A vertical segment of the capsule is removed from its posterior aspect, avoiding in this way too rapid a closing of the incision. The limb is immobilised in a plaster case, including both hip and knee. It is wise to control carefully the duration of immobilisation and remove the case as soon as possible, for such highly infected cases easily acquire pressure sores. The immediate result of resection is to abolish threatening infectious complications.

*Severe Wounds of the Foot.*

M. Quénu reported to the Society of Surgery 30 observations on wounds of the foot treated in field ambulances by M. Chalier. In one of these cases the soft tissues alone were concerned; the 29 others were osteo-articular wounds. M. Quénu divides these wounds into total and segmentary; the latter again into transverse (the commonest), longitudinal and wounds of the arch (fairly infrequent). Transverse partial wounds are again subdivided into wounds of the forepart of the foot, in front of, or on the interline of, the mediotarsal; wounds of the posterior part of the foot; and wounds of the ankle. The total of 30 foot or ankle wounds showed 3 deaths, 1 from tetanus and 2 from gas gangrene; there were 10 total mutilations (amputation of the leg), 4 partial mutilations (partial amputation of the foot), while 13 recovered without mutilation. Wounds of the forepart of the foot were the most favourable, although they accounted for 1 death by gangrene. Wounds of the posterior part of the foot accounted for 1 amputation for septicæmia. The cases of ankle wounds resulted in 1 death and 5 amputations, those complicated by lesion of the calcaneum being especially grave. For wounds of the arch there was one amputation, and the "total" injuries were responsible for 1 death and 2 amputations of the leg. M. Delbet, from experience at a base hospital, declared himself in entire agreement with M. Quénu, especially on the distinction to be made between wounds of the anterior and of the posterior tarsus. Posterior fractures with shattering of the calcaneum were specially grave. In these cases attention must not be concentrated exclusively on preservation of the foot; it was sometimes better to amputate than to run grave risks for the patient in order to preserve a foot which might in any case be of little use to him. M. Sébileau stated that by avoiding immediate systematic operation and allowing the wound free discharge in large warm baths of saline or carbolated water, he had achieved the remarkable result of saving the foot and its functions in every case. In cases where total ablation of the foot was indicated and the wound rendered this course practicable, M. Potherat recommended Syme's disarticulation. It was an easy and rapid operation for the surgeon, could be performed even in a septic area, was easy to fit later with any kind of apparatus, and resulted in but slight shortening of the lower limb. This operation is therefore far superior to amputation of the leg. M. J.-L. Faure regarded wounds of the posterior tarsus as always grave and most serious when the astragalus was involved and its articulations laid open. Astragalectomy was, in his experience, not infrequently followed by amputation of the leg after months of suffering and fruitless attempts to preserve the foot.

*Foreign Body in the Intestine.*

M. Tesson showed to the Society of Surgery a kind of chaplet of 136 porcelain buttons (similar to those worn on hospital blouses). The man from whom it was taken was not mentally deranged but suffered from gastric trouble, and used the chaplet as a gastro-œsophageal mop, claiming to obtain relief from it. One day the thread broke and the chaplet disappeared into his stomach. M. Tesson saw the patient ten days later at the height of an attack of general peritonitis due to perforation. The foreign body, lodged in the small intestine near the cæcum, was extracted by enterotomy. Death occurred next day.

June 25th.

# ZINC WATERS—THEIR POTABILITY AND GERMICIDAL EFFECT.

BY H. H. SCOTT, M.D., M.R.C.P., D.P.H. LOND.;
AND
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IN September, 1915, analysis of the drinking water of a small depôt in the Aldershot Command revealed the presence of 3·44 parts of metallic zinc per 100,000. The question naturally arose whether or not this water should be passed for human consumption. In November, Dr. J. C. Thresh contributed an article to THE LANCET[1] in which he recorded an instance where 2·3 parts of zinc per 100,000 had apparently caused no disturbance of health in a mixed community during a period of 10 years. An editorial note in the same issue referred to another case where some 4·6 parts of zinc were discovered in a public supply in Wales.

*Source and Zinc Content of the Water.*

In view of these experiences it was decided to pass the depôt supply for the time being, to notify the medical officer of the existing state of affairs, and to keep the water itself under fairly close supervision. This water has been the sole drinking supply for some 200 men for two years. During that time the health of the troops has been excellent, with the exception of one small outbreak of colic and diarrhœa involving only nine men in all. It proved impossible to connect this outbreak in any way with the water-supply. Furthermore, the commandant's house, prior to the introduction of the present system, obtained its water from a very contaminated well in the neighbourhood, and the children of the household frequently suffered, among other things, from various forms of "sore-throat." Since the new supply has been laid on all such minor ailments have disappeared, and the household drinks with impunity a water which has a definite metallic taste, and which has on one occasion been proved to contain no less than 4·72 parts of metallic zinc per 100,000. The source of supply is a shallow well situated on a knoll in the midst of cultivated clay soil about 1000 yards from the depôt. The well is some 30 feet in depth and contains from 4 to 6 feet of water. A windmill pumps the water through 1000 yards of galvanised-iron piping to a reinforced concrete tower capable of holding two days' supply. Thence it passes by more galvanised-iron service pipes to various points within the depôt. In the case of the commandant's house—a distance of some 400 yards from the tower—water is stored prior to use in a large galvanised-iron cistern.

The following table shows the varying amounts of zinc as estimated gravimetrically from time to time:—

TABLE I.

| Date. | Galvanised iron. | Metallic zinc, parts per 100,000. | Date. | Galvanised iron. | Metallic zinc, prts. per 100,000. |
|---|---|---|---|---|---|
| 25/9/15 | Old storage tank. | 3·44 | 10/9/16 | 1000 yards piping. | 3·02 |
| 28/9/15 | 1000 yards piping. | 3·58 | 10/9/16 | 1200 ,, ,, | 3·77 |
| 17/1/16 | 1000 ,, ,, | 2·985 | 6/12/16 | 1000 ,, ,, | 2·09 |
| 17/1/16 | 1200 ,, ,, | 4·076 | 6/12/16 | 1200 ,, ,, | 2·44 |
| 3/3/16 | 1000 ,, ,, | 2·38 | 6/12/16 | 1400 ,, ,, | 3·32* |
| 3/3/16 | 1200 ,, ,, | 3·18 | 8/1/17 | 1400 ,, ,, | 4·72* |
| 18/4/16 | 1000 ,, ,, | 2·51 | 17/1/17 | 1400 ,, ,, | 4·27* |
| 18/4/16 | 1200 ,, ,, | 3·2 | | | |

* Galvanised-iron storage tank as well. The last two samples were drawn in the early morning.

It will be noted that there is tendency for the amount of zinc to decrease. The incoming water in the tower yielded on last examination only 2·09 parts of zinc as compared with 3·58 parts some 15 months previously. The amount of zinc dissolved must, of course, vary with the duration of contact. The well water, which is quite free from zinc, is neutral in reaction, contains between 2 and 3 parts of free $CO_2$ per 100,000 and shows only two parts of temporary hardness out of a total figure of 9. Its zinc solvent power, as tested experimentally on ordinary zinc foil, is considerable. The

[1] THE LANCET, Nov. 13th, 1915, p. 1098.

zinc is evidently held in solution as a bicarbonate, as it is completely thrown down by continued boiling. Liming the well water prevents more than a trace of the metal being taken up. Such being the case, one would expect an increase only in temporary hardness the greater the distance the water flows through the various pipes. It is found, however, that the permanent hardness increases to a considerable extent as well, a fact not so easy of explanation. The figure for non-volatile solids rises as more zinc is dissolved.

*Bacteriological Investigation.*

Various bacteriological examinations of the water have been made. The following are average results obtained from (*a*) four samples of the well water and (*b*) a similar number of tap water containing about 4 parts of metallic zinc per 100,000.

TABLE II.

| — | No. of colonies on agar in 48 hours at 37° C. | No. of colonies on gelatin in 72 hours at 22° C. | MacConkey's bile-salt lactose broth. |
|---|---|---|---|
| Well water ... | 32 | 109 | Lactose fermenters in from 0·1 to 1 c.c. |
| Tap water ... | 3 | 88 | Lactose fermenters absent in 40 c.c. |

The presence of zinc in solution appeared to inhibit the growth of organisms flourishing at blood heat, especially those fermenting lactose, while it affected but little others growing on gelatin. It was also noted that the decrease in the number of organisms seemed proportionate to the increase in the amount of zinc taken up by the water.

In order to confirm the suspicion that the presence of zinc, taken up by the water in its passage from the well to the commandant's house, might be responsible for the marked reduction in blood-heat organisms in general and in *Bacillus coli* in particular, the following series of experiments were undertaken:—

1. A sample of the well water was obtained with the usual precautions and brought direct to the laboratory where it was placed in the refrigerator for a short period (3–4 hours) intervening between its arrival and the setting out of the test. The average quantity of zinc found by former examinations of the water from the commandant's house, as shown in Table I., has been between 3 and 4·5 parts per 100,000. Thirteen tubes were set up containing quantities of zinc sulphate varying from 1 to 7 parts (of the metal) per 100,000, in gradations of 0·5 part—i.e., 1, 1·5, 2, 2·5 ..... 7. In each of these tubes 10 c.c. of the well water were placed. At the same time control agar plates were poured in order that the number of colonies developing in 48 hours at 37° C. might be accurately estimated for the sample on this particular occasion. The 13 tubes were then placed also at 37° C., and from each of them 1 c.c. was plated out in agar at the end of 24, 48, and 72 hours' contact, and counted 48 hours later, as in the control plate.

The objects of this experiment were, clearly, to see what effect, if any, the presence of definite quantities of a known salt of zinc might have on a water the bacterial content of which was known, and also to note whether more prolonged contact would increase the bactericidal effects, if present. The longest time during which the water in question could be in contact with the zinc being three days, this period was the limit employed in our experiments. The control plate yielded a count of 51 colonies, and the following Table III. gives the result of the test.

TABLE III.

*Experiment 1.*—Well water 10 c.c. and varying amounts of $ZnSO_4$. Control plates showed that the water contained 51 organisms per c.c. developing at 37° C. in 48 hours.

| Quantity of zinc in parts per 100,000. | No. of colonies per c.c. developing in agar in 48 hours. | | | Quantity of zinc in parts per 100,000. | No. of colonies per c.c. developing in agar in 48 hours. | | |
|---|---|---|---|---|---|---|---|
| | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. | | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. |
| 1·0 | 7 | 0 | 0 | 4·5 | 1 | 0 | 0 |
| 1·5 | 6 | 0 | 4 | 5·0 | 0 | 0 | 0 |
| 2·0 | 6 | 0 | 1 | 5·5 | 0 | 0 | 0 |
| 2·5 | 3 | 0 | 0 | 6·0 | 0 | 0 | 0 |
| 3·0 | 1 | 0 | 1 | 6·5 | 1 | 1 | 0 |
| 3·5 | 5 | 0 | 2 | 7·0 | 1 | 0 | 0 |
| 4·0 | 2 | 0 | 2 | | | | |

There is no need to elaborate the findings expressed in the table, the facts are eloquent in themselves.

2. The next experiment was as follows: A similar series of 13 tubes was prepared with the same increasing quantities of zinc sulphate, but in place of the natural well water, sterilised water was used, and a definite number of *B. coli* was added to each. A control plate of the sterile water and the *B. coli* was poured at the same time in order to give us an estimate of the number of organisms we were adding. It was our intention to add as nearly as practicable the same number of known organisms (*B. coli*) as there were bacteria developing at 37° C. in 48 hours from 1 c.c. of the well water sample. This latter, as stated above, proved to be 51; our control of the emulsion used showed 106 colonies, near enough to allow of comparable estimation.

Thus we had a series of tubes containing each 10 c.c. of sterilised water with approximately 100 *B. coli* organisms per c.c., and quantities of zinc varying from 1 to 7 parts per 100,000. These were placed in the thermostat at 37° C. as was done in Experiment 1, and plates were poured from each at the end of 24, 48, and 72 hours respectively. The plates were then incubated for 48 hours in each case and the numbers of colonies which developed were enumerated. The tabulated results are here given:—

TABLE IV.

*Experiment 2.*—Sterile water containing varying quantities of $ZnSO_4$ and a definite number of *B. coli*. per c.c.

| Quantity of zinc in parts per 100,000. | No. of colonies per c.c. developing in agar in 48 hours. | | | Quantity of zinc in parts per 100,000. | No. of colonies per c.c. developing in agar in 48 hours. | | |
|---|---|---|---|---|---|---|---|
| | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. | | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. |
| 1·0 | 62 | 0 | 0 | 4·5 | 5 | 1 | 0 |
| 1·5 | 280 | 0 | 0 | 5·0 | 4 | 0 | 0 |
| 2·0 | 149 | 0 | 0 | 5·5 | 3 | 1 | 0 |
| 2·5 | 158 | 0 | 0 | 6·0 | 1 | 1 | 2 |
| 3·0 | 72 | 1 | 1 | 6·5 | 4 | 0 | 0 |
| 3·5 | 57 | 1 | 0 | 7·0 | 4 | 0 | 0 |
| 4·0 | 8 | 0 | 1 | | | | |

The high figures with tubes 2, 3, and 4 compared with 1 and 5 after 24 hours contact are probably due to accidental contamination when pouring the plates, especially since we notice that there was no growth from these same tubes after another 24 hours contact. This explanation is further substantiated by the fact that many of the colonies which grew on these plates were examined and found not to be *B. coli* at all, the only organism which had been added intentionally.

The noteworthy point, however, is the marked fall in the number of colonies developing from the tube containing 4 parts of zinc, which fall is maintained for the remainder of the series.

A question of autolysis of bacteria may be raised here, and there is no doubt that in the absence of any nutriment (the organisms having been added to sterilised water) a certain amount of autolysis must have occurred, but whether sufficient to reduce the original number to any appreciable extent was left for a subsequent experiment. But, even then, autolysis cannot account for the very remarkable reduction from 57 colonies developing from the tube containing 3·5 parts per 100,000 to 8 in that containing 4 parts. Further, it will be noticed that after contact for 48 hours only 5 of the tubes yielded any growth at all, and then only one colony.

3. As a control to this last a second series was put up a week later on the same lines with a similar culture, using varying amounts of metallic zinc (the sulphate being the salt employed) from 1 part to 5 parts per 100,000. The results of this are given below.

TABLE V.

*Experiment 3.*—Repetition of Experiment 2.

| Quantity of zinc in parts per 100,000. | No of colonies per c.c. developing in agar in 48 hours. | | | Quantity of zinc in parts per 100,000. | No. of colonies per c.c. developing in agar in 48 hours. | | |
|---|---|---|---|---|---|---|---|
| | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. | | After 24 hours contact. | After 48 hours contact. | After 72 hours contact. |
| 1·0 | 65 | 3 | 0 | 3·5 | 0 | 0 | 1 |
| 1·5 | 15 | 0 | 0 | 4·0 | 2 | 0 | 3 |
| 2·0 | 41 | 0 | 0 | 4·5 | 0 | 0 | 0 |
| 2·5 | 59 | 1 | 1 | 5·0 | 0 | 1 | 0 |
| 3·0 | 21 | 1 | 0 | | | | |

The only difference to note between these findings and the previous ones in that the drop in the first took place between 3·5 and 4 parts per 100,000, whereas in the latter it occurred at about 3 parts,

4. Our next experiment was arranged on lines somewhat similar to the last, but instead of varying the proportion of

zinc present, graded amounts of *B. coli* were added to the sterile water which contained the fixed quantity of 4 parts of zinc per 100,000 (i.e., the amount which has been found in water under investigation). The numbers of *B. coli* varied from 40 per c.c. in the first tube to 4000 in the last.

As in the previous experiments the tubes were placed at 37° C. and at the termination of 24, 48, and 72 hours plates were poured, and these after a further 48 hours incubation were examined and the numbers of colonies developing were counted.

TABLE VI.

*Experiment 4.*—To show the effects of the zinc on graduated numbers of *B. coli*, on the analogy of the previous experiments.

| No. of *B. coli* per c.c. | No. of colonies per c.c. developing in agar in 48 hours. | | | No. of *B. coli* per c.c. | No. of colonies per c.c. developing in agar in 48 hours. | | |
|---|---|---|---|---|---|---|---|
| | After 24 hours contact. | After 48 hours contact | After 72 hours contact. | | After 24 hours contact | After 48 hours contact | After 72 hours contact. |
| 40 | 7 | 0 | 0 | 800 | 102 | 0 | 0 |
| 200 | 103 | 3 | —* | 2000 | 189 | 0 | 0 |
| 400 | 69 | 0 | 0 | 4000 | 316 | 0 | 1 |

* Plate contaminated; overgrown by mould.

Undoubtedly here also the question of autolysis would come into consideration (VI.). In connexion with this experiment it is a point worth noting that the well water by previous analyses might show 50 colonies per c.c. or thereabouts, while that from the commandant's house on the same day had as few as 5 or 6, a reduction closely approximating that found by the experiment above.

With a view to elucidating the question as to the degree in which autolysis might be the cause of the reduction in Experiments 2 and 3, several series were put up, as in these experiments, but without any zinc, merely sterile water and *B. coli* in varying quantities, and estimated by the same method of incubating for 48 hours plates poured after the bacilli had been in the water for 24, 48, and 72 hours. The results were too variable to be worth recording; in some of the tubes there appeared to be but very little reduction at all within the times specified, while in others the numbers of organisms developing were considerably less, while yet again in others the plates showed some increase. The results of different experiments revealed different findings even with practically the same number of added organisms. There is no need, therefore, to give the details of these results; suffice it to say that in no instance was the reduction anything approaching that found in the zinc water experiments.

5. Finally, we considered that it would be instructive to use for experiment the water from the commandant's house with the zinc content in its natural state, instead of employing sterile water and artificially prepared $ZnSO_4$ solution. The water on this occasion yielded 4 colonies per c.c. growing in agar in 48 hours, and contained between 4 and 5 parts of zinc per 100,000. Varying numbers of *B. coli* were added as in Experiment 4, and plating was performed after further contact for 48 and 72 hours. The results obtained are presented in the following table:—

TABLE VII.

*Experiment 5.*—To show the effects of zinc in the water taken from the commandant's house after contact with varying quantities of *B. coli*.

| No. of *B. coli* added per c.c. | No. of colonies per c.c. developing in 48 hours in agar. | |
|---|---|---|
| | After 24 hours contact. | After 72 hours contact. |
| 20 | 2 | 0 |
| 100 | 35 | 0 |
| 200 | 47 | 0 |
| 500 | 55 | 1 |
| 1000 | 65 | 2 |

The times of contact were determined upon by the fact that the water as used is generally left for 24 hours and might conceivably be stored for as long as three days.

*Summary and Conclusions.*

1. During a period of two years a depôt of some 200 men has had as its sole supply a water proved to contain zinc in amounts varying from 2·5 to 4·72 parts of the metal per 100,000. No disturbance of health has resulted.

2. In one household the disappearance of a persistent condition of ill-health, attributed locally to a contaminated water-supply, coincided with the laying on of a water containing considerable quantities of zinc.

3. The number of organisms developing at blood heat from the well water is markedly greater than that found in the same water after it has taken up from 3 to 4 parts of metallic zinc per 100,000, and remained in storage for two days at most.

4. In order to ascertain whether or not this inhibitory effect on bacterial growth might be due to the zinc content of the water various experiments were undertaken.

5. From 3 to 4 parts of metallic zinc (as sulphate) appear to be sufficient, after 24 hours contact, to inhibit, if not destroy, coliform organisms in numbers considerably exceeding those likely to be found in any ordinary drinking supply (Experiment 2).

6. Even as small an amount as 1·5 parts of metallic zinc (as sulphate) per 100,000 renders such water practically sterile in 48 hours (Experiments 2 and 3).

7. The use of a water containing zinc naturally in solution as a carbonate shows analogous results, but, as would be expected, the reduction in the number of coliform organisms after the first 24 hours is not so great, though complete sterilisation appears to take place between 48 and 72 hours.

## URBAN VITAL STATISTICS.

(Week ended June 23rd, 1917.)

*English and Welsh Towns.*—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 17,000,000 persons, the annual rate of mortality was 12·4, against 12·7 and 12·8 per 1000 in the two preceding weeks. In London, with a population exceeding 4,000,000 persons, the death-rate was 12·2, or 0·1 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 4·7 in Wimbledon, 4·8 in Ealing, and 5·3 in Barnsley to 20·5 in Bury, 21·0 in South Shields, and 21·6 in West Bromwich. The principal epidemic diseases caused 316 deaths, which corresponded to an annual rate of 1·0 per 1000, and included 179 from measles, 54 from infantile diarrhœa, 42 from whooping-cough, 31 from diphtheria, 8 from enteric fever, and 2 from scarlet fever. The deaths from measles showed a further decline compared with the numbers registered in the three preceding weeks, and caused the highest annual death-rates of 4·3 in South Shields, 4·5 in Middlesbrough, 5·2 in Walsall, and 7·0 in West Bromwich. The 587 cases of scarlet fever and 1067 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were respectively 14 and 22 below the numbers remaining at the end of the previous week. Of the 4032 deaths from all causes in the 96 towns, 259 resulted from violence. The causes of 33 deaths were uncertified, of which 6 were registered in Birmingham and 3 each in London, Liverpool, Sunderland, and Rhondda.

*Scotch Towns.*—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual death-rate was equal to 13·8, against rates declining from 17·0 to 14·7 per 1000 in the five preceding weeks. The 337 deaths in Glasgow corresponded to an annual rate of 15·7 per 1000, and included 35 from whooping-cough, 18 from measles, 7 from infantile diarrhœa, 3 from diphtheria, and 1 each from enteric fever and scarlet fever. The 72 deaths in Edinburgh were equal to a rate of 11·3 per 1000, and included 4 each from measles and whooping-cough, and 1 from diphtheria.

*Irish Towns.*—The 133 deaths in Dublin corresponded to an annual rate of 17·4, or 0·4 per 1000 less than that recorded in the previous week, and included 3 from measles and 1 each from scarlet fever and infantile diarrhœa. The 91 deaths in Belfast were equal to a rate of 12·1 per 1000, and included a fatal case of measles.

### VITAL STATISTICS OF LONDON DURING MAY, 1917.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 3·5 per 1000 of the population, estimated at 4,237,287 persons; in the three preceding months the rates were 4·2, 4·4, and 3·7 per 1000 respectively. The lowest rates last month were recorded in Paddington, Hammersmith, the City of Westminster, Hampstead, and the City of London; while the highest rates were recorded in Shoreditch, Bethnal Green, Southwark, Bermondsey, Deptford, and Woolwich. Scarlet fever was rather more prevalent than it had been in the preceding month; among the several metropolitan boroughs the greatest proportional prevalence of this disease was recorded in St. Marylebone, Hackney, Finsbury, Shoreditch, Southwark, Bermondsey, Battersea, and Wandsworth. The Metropolitan Asylums Hospitals contained 613 scarlet fever patients at the end of last month, against 811, 785, and 712 at the end of the three preceding months; the weekly admissions averaged 92, against 102 and 93 in the two preceding months. The prevalence of diphtheria showed a decline from that recorded in other recent months; this disease was proportionally most prevalent last month in Stoke Newington, Holborn, Shoreditch, Bethnal Green, Poplar, Southwark, Bermondsey, Greenwich, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1453, 1367, and 1206 at the end of the three preceding months, had further declined to 1048 at the end of last month; the weekly admissions averaged 129, against 165, 161, and 142 in the three preceding months. The prevalence of enteric fever was slightly in excess of that recorded in the preceding month; of the 39 cases notified during May, 5 belonged to Islington, 5 to Wandsworth, and 3 each to St. Pancras, Poplar, and Camberwell. There were 27 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 29 and 25 at the end of the

## ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1917.

*(Specially compiled for* THE LANCET.)

| CITIES AND BOROUGHS. | Estimated civil population, 1916. | Notified Cases of Infectious Disease. | | | | | | | | | | | Deaths from Principal Infectious Diseases. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Small-pox. | Scarlet fever. | Diphtheria.* | Typhus fever. | Enteric fever. | Other continued fevers. | Puerperal fever. | Erysipelas. | Cerebro-spinal meningitis. | Poliomyelitis. | Total. | Annual rate per 1000 persons living. | Small-pox. | Measles. | Scarlet fever. | Diphtheria.* | Whooping-cough. | Enteric fever. | Diarrhœa and enteritis (under 2 years). | Total. | Annual rate per 1000 persons living. | Deaths from all causes. | Death-rate per 1000 living. |
| LONDON ... ... ... | 4,237,387 | — | 464 | 655 | — | 39 | 3 | 15 | 212 | 44 | 4 | 1436 | 3·5 | — | 291 | 5 | 44 | 59 | 8 | 73 | 480 | 1·2 | 5632 | 13·9 |
| *West Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Paddington ... ... | 130,668 | — | 5 | 18 | — | 1 | — | — | 6 | — | — | 30 | 2·4 | — | 28 | — | 1 | 3 | — | 3 | 35 | 2·8 | 210 | 16·8 |
| Kensington ... ... | 152,144 | — | 17 | 18 | — | 2 | — | — | 2 | 2 | — | 41 | 2·8 | — | 41 | 1 | 2 | 4 | 1 | 3 | 52 | 3·6 | 237 | 16·2 |
| Hammersmith ... | 117,965 | — | 1 | 18 | — | 2 | — | — | 3 | 1 | — | 25 | 2·2 | — | 14 | 1 | 1 | 2 | — | 2 | 20 | 1·8 | 159 | 14·0 |
| Fulham ... ... ... | 149,428 | — | 17 | 24 | — | 2 | — | 2 | 4 | 1 | — | 50 | 3·5 | — | 14 | — | 1 | 2 | 1 | 5 | 23 | 1·6 | 186 | 13·0 |
| Chelsea ... ... ... | 57,298 | — | 8 | 2 | — | 1 | — | — | 2 | 1 | — | 14 | 2·5 | — | — | — | — | — | 1 | 2 | 3 | 0·5 | 80 | 14·6 |
| City of Westminster | 132,853 | — | 14 | 8 | — | — | — | 1 | 1 | 2 | — | 26 | 2·0 | — | 2 | — | — | 1 | — | 1 | 4 | 0·3 | 158 | 12·4 |
| *North Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Marylebone ... | 98,573 | — | 14 | 15 | — | 1 | — | — | 4 | 1 | — | 35 | 3·7 | — | 10 | — | — | — | — | 3 | 13 | 1·4 | 155 | 16·4 |
| Hampstead ... ... | 81,470 | — | 3 | 7 | — | — | — | — | — | 1 | — | 11 | 1·4 | — | 1 | — | — | — | — | — | 1 | 0·1 | 71 | 9·1 |
| St. Pancras ... ... | 196,812 | — | 12 | 25 | — | 3 | — | — | 11 | 2 | — | 53 | 2·8 | — | 23 | — | 2 | 3 | 1 | 3 | 32 | 1·7 | 297 | 15·7 |
| Islington ... ... ... | 309,359 | — | 24 | 35 | — | 5 | — | — | 12 | 2 | 1 | 79 | 2·7 | — | 13 | 1 | — | 6 | — | 5 | 25 | 0·8 | 385 | 13·0 |
| Stoke Newington... | 49,776 | — | 3 | 11 | — | — | — | — | 3 | 1 | — | 18 | 3·8 | — | 7 | — | 1 | 2 | — | — | 10 | 2·1 | 78 | 16·3 |
| Hackney ... ... ... | 209,636 | — | 34 | 26 | — | 2 | — | — | 12 | — | — | 74 | 3·7 | — | 3 | — | 1 | 5 | — | 2 | 11 | 0·5 | 281 | 14·0 |
| *Central Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Holborn ... ... ... | 38,161 | — | 1 | 8 | — | — | 1 | — | 3 | — | — | 13 | 3·6 | — | 5 | — | — | 1 | — | 1 | 7 | 1·9 | 63 | 17·2 |
| Finsbury ... ... ... | 74,230 | — | 13 | 11 | — | — | — | 1 | 2 | — | — | 27 | 3·8 | — | 3 | — | 2 | — | — | 1 | 6 | 0·8 | 108 | 15·2 |
| City of London ... | 20,113 | — | 1 | 1 | — | — | — | — | 1 | — | — | 3 | 1·6 | — | — | — | — | — | — | — | — | — | 21 | 10·9 |
| *East Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Shoreditch ... ... | 99,932 | — | 16 | 21 | — | 2 | — | 1 | 14 | 2 | — | 56 | 5·8 | — | 3 | — | 3 | 4 | — | 4 | 14 | 1·5 | 152 | 15·9 |
| Bethnal Green ... | 115,552 | — | 15 | 26 | — | 1 | — | — | 13 | 6 | — | 61 | 5·5 | — | 11 | — | 2 | — | — | 6 | 19 | 1·7 | 145 | 13·1 |
| Stepney ... ... ... | 258,395 | — | 22 | 48 | — | — | 1 | 1 | 13 | 1 | 1 | 87 | 3·5 | — | 9 | — | 2 | 1 | — | 9 | 21 | 0·8 | 356 | 14·4 |
| Poplar ... ... ... | 155,096 | — | 12 | 34 | — | 3 | — | — | 10 | 1 | — | 60 | 4·0 | — | 15 | — | 3 | 4 | 1 | 2 | 25 | 1·7 | 240 | 16·1 |
| *South Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Southwark ... ... | 177,166 | — | 27 | 41 | — | — | — | 3 | 12 | 2 | 1 | 86 | 5·1 | — | 5 | 1 | 4 | 2 | — | — | 12 | 0·7 | 273 | 16·1 |
| Bermondsey ... ... | 113,661 | — | 23 | 41 | — | — | — | — | 6 | — | — | 70 | 6·4 | — | 11 | — | 2 | — | — | 6 | 19 | 1·7 | 175 | 16·1 |
| Lambeth ... ... ... | 283,729 | — | 28 | 51 | — | 2 | 1 | — | 12 | 1 | 1 | 96 | 3·5 | — | 17 | — | 1 | 4 | — | 3 | 25 | 0·9 | 340 | 12·5 |
| Battersea ... ... | 159,402 | — | 23 | 15 | — | 2 | — | — | 11 | 1 | — | 52 | 3·4 | — | 6 | — | 1 | 3 | 1 | 1 | 12 | 0·8 | 187 | 12·2 |
| Wandsworth ... ... | 310,858 | — | 48 | 34 | — | 5 | — | 1 | 13 | 4 | — | 105 | 3·5 | — | 10 | — | 4 | 3 | — | 2 | 19 | 0·6 | 334 | 11·2 |
| Camberwell ... ... | 249,749 | — | 33 | 41 | — | 3 | — | 2 | 9 | 1 | — | 89 | 3·7 | — | 17 | 1 | 4 | 4 | 1 | 3 | 30 | 1·3 | 330 | 13·8 |
| Deptford ... ... ... | 107,696 | — | 12 | 14 | — | — | — | 1 | 12 | 3 | — | 42 | 4·1 | — | 9 | — | 5 | 2 | — | — | 16 | 1·5 | 149 | 14·4 |
| Greenwich ... ... | 94,452 | — | 8 | 21 | — | 1 | — | — | 5 | 1 | — | 36 | 4·0 | — | 7 | — | — | 2 | — | 2 | 11 | 1·2 | 136 | 15·0 |
| Lewisham ... ... | 162,901 | — | 21 | 14 | — | 1 | — | 1 | 4 | 4 | — | 45 | 2·9 | — | 5 | — | — | 1 | 1 | 2 | 9 | 0·6 | 170 | 10·9 |
| Woolwich... ... ... | 130,313 | — | 9 | 27 | — | — | — | 1 | 12 | 3 | — | 52 | 4·2 | — | 2 | — | 2 | — | — | 2 | 6 | 0·5 | 156 | 12·5 |
| Port of London ... | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

* Including membranous croup.

two preceding months; the weekly admissions averaged 6, against 6 and 4 in the two preceding months. Erysipelas was proportionally most prevalent last month in Holborn, Shoreditch, Bethnal Green, Poplar, Southwark, Battersea, Deptford, and Woolwich. The 15 cases of puerperal fever notified during the month included 3 in Southwark, 2 in Fulham, and 2 in Camberwell. Of the 44 cases of cerebro-spinal meningitis, 6 belonged to Bethnal Green, 4 to Wandsworth, 4 to Lewisham, 3 to Deptford, and 3 to Woolwich; while the 4 cases notified as poliomyelitis belonged respectively to Islington, Stepney, Southwark, and Lambeth.

The mortality statistics relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending June 2nd the deaths of 5632 London residents were registered, equal to an annual rate of 13·9 per 1000; in the three preceding months the rates had been 21·3, 18·3, and 18·2 per 1000 respectively. The death-rates last month ranged from 9·1 in Hampstead, 10·9 in the City of London and in Lewisham, 11·2 in Wandsworth, and 12·2 in Battersea; the highest rates were 16·1 in Poplar, in Southwark, and in Bermondsey, 16·2 in Kensington, 16·3 in Stoke Newington, 16·4 in St. Marylebone, 16·8 in St. Pancras, and 17·2 in Holborn. The 5632 deaths from all causes included 480 which were referred to the principal infectious diseases; of these, 291 resulted from measles, 5 from scarlet fever, 44 from diphtheria, 59 from whooping-cough, 8 from enteric fever, and 73 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in the City of Westminster, Chelsea, Hampstead, Hackney, and Woolwich; and the highest rates in Paddington, Kensington, Hammersmith, Stoke Newington, and Holborn. The 291 deaths from measles were 111 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Paddington, Kensington, Hammersmith, St. Pancras, Stoke Newington, and Holborn. The 5 fatal cases of scarlet fever were 16 fewer than the corrected average number, and included 1 each in Kensington, Hammersmith, Islington, Southwark, and Camberwell. The 44 deaths from diphtheria were equal to the corrected average, and included 5 in Deptford, 4 in Southwark, 4 in Wandsworth, 4 in Camberwell, 3 in Shoreditch, and 3 in Poplar. The 59 fatal cases of whooping-cough were 79 below the corrected average number, and included 6 in Islington, 5 in Hackney, and 4 each in Kensington, Shoreditch, Poplar, Lambeth, and Camberwell. The 8 deaths from enteric fever showed a decline of 3 from the corrected average, and belonged respectively to Kensington, Fulham, Chelsea, St. Pancras, Poplar, Battersea, Camberwell, and Lewisham. The 73 fatal cases of diarrhœa and enteritis among children under 2 years of age were 18 below the corrected average number; the greatest proportional mortality from this cause last month was recorded in Fulham, Shoreditch, Bethnal Green, Stepney, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 1·0 per cent. below the average.

BABY WEEK.—From July 1st to 7th special efforts will be made throughout the country to bring home to the people the pressing need for conserving child-life, and by means of processions, pageants, lectures, and exhibitions it is hoped that the movement, which has already produced such good results by the establishment of maternity and child welfare centres, may be still further extended. In London on July 2nd in the Guildhall a resolution defining the policy of Baby Week will be proposed. It will run as follows:—

> In view of the overwhelming necessity for saving infant life at a time of unparalleled drain on the manhood and womanhood of the nation, the citizens here assembled earnestly call for the coöperation everywhere of municipal and voluntary enterprise to secure the following objects and pledge themselves to do their utmost in their respective localities for the furtherance of the same: (1) a full-time health visitor, under the control of the local medical officer of health, for every 400 babies in the area; (2) an approved infant welfare centre within the reach of every working-class home; (3) ample facilities for the antenatal care of mothers; (4) medical supervision of children between two years and school age.

On the same day Her Majesty the Queen will open in the Central Hall, Westminster, a child welfare exhibition, where everything that concerns the practical nurture and training of the child will be exhibited to the eye, while a series of conferences will also take place dealing with midwifery, illegitimacy problems, the care of the unmarried mother and her child, and other cognate subjects. Sir Francis Champneys and Sir Robert Morant are among the chairmen, while the speakers will include Professor E. W. Hope, Dr. Janet Lane-Claypon, and Miss A. Gregory. One of the methods of propaganda which ought to be productive of good results is the prize essay scheme in connexion with the elementary schools, the subject for boys being "Why should I kill that fly?" and for the girls "How I mind our baby." The special attractions for provincial towns and villages include baby shows, perambulator parades, and exhibitions of various kinds relating to mothercraft. At the Heritage Crafts Schools, Chailey, Sussex, there will be a special demonstration of Montessori ideals in connexion with the Montessori Hospital School for Tiny Crippled and Suffering Children, when Mr. Robert Mond, the founder of the Infants Hospital, Vincent-square, London, will preside and Professor Cyril L. Burt will give a short address. The address of the Executive Council for Baby Week in London is 6, Hollesstreet, W. 1, and full information regarding the programme may be obtained from the secretary.

# Correspondence.

"Audi alteram partem."

## THE VARIATION IN THE SPECIFIC GRAVITY OF URINE AND ITS RELATION TO DISEASE.

*To the Editor of* THE LANCET.

SIR,—In the pressure of general or even special practice, the urinometer seems generally looked upon as a mere guide as to whether the physician is to go to the further trouble to test for sugar; and when this and albumin are absent and nothing is suspected which requires the skilled aid of the analytical chemist or the bacteriologist, other possible conditions are often either entirely neglected or are regarded as of little value as a further means to diagnosis. Such oversight is particularly to be deprecated with regard to so simple and valuable an aid as the systematic registration of specific gravities.

By long and careful observation I have come to the conclusion that urines of specific gravities below 1015, and in certain cases below 1030, extending over long periods are of more pathological importance than those containing a slight percentage of either albumin or sugar. In the former there is a greater or lesser retention of the toxins of katabolism or tissue waste, a retention which will vary with the specific gravity; in the latter, such toxins may be fully eliminated.

Nor may such low specific gravities always be the result of sclerotic kidney or of high blood pressure, but in many cases are probably due to kidneys neither diseased nor congested, but more or less functionally inactive to the elimination of any substances other than pure water, a condition which may be responsible for more chronic ailments and diseases of obscure etiology than is generally supposed.

The specific gravity 1015, which is generally considered normal and is usually passed over without question, is inadequate to carry off the toxins constantly accumulating in the systems of those who live too freely, and even double this figure would scarcely suffice to keep such cases in perfect health.

Children during convalescence from scarlet fever show little evidence of pathological change except in so far as albumin may appear in the urine. It is when the albumin has disappeared, and the child seems to have escaped all the after consequences of the fever, that the real mischief is taking place. It is at this period, not only in consequence of the disappearance of albumin, but also because of the diminishing quantity of normal urinary constituents, that the urine falls still lower in specific gravity and becomes practically negative to reactions, is frequently almost colourless, and, in fact, sometimes in that condition which mothers describe as—"beautiful, looks just as though it had come out of the tap."

It would thus appear that the more lasting injury caused by the toxins and high temperature of the preceding fever has fallen upon those cells in the kidney whose functions it is to exert a selective activity on the blood, and to eliminate the products of katabolism, and that these cells, mainly the tubular epithelium, after the excessive work which has been thrown upon them in the rapid katabolism of fever have now reached a stage of exhaustion or lowered vitality, and remain in this condition long after the glomeruli have recovered and the albumin has disappeared.

That the glomeruli should be the first to suffer injury and the first to recover seems difficult to explain, but the fact that albumin first appears in the urine and then disappears, followed by a diminution and sometimes an almost complete, or even an entire absence of those substances believed to be excreted by the tubular epithelium, seems plainly to indicate that such is the case.

But in the meantime metabolism is going on and the uneliminated products of katabolism are steadily rising in the blood, and their toxic effects will appear ere long—in one case as rheumatism, in another as chorea, or in another as an "-itis" somewhere in the tissues. The particular tissue selected for attack will, of course, be that one whose vitality has been most impaired by the previous fever, and this again will depend upon idiosyncrasy.

In scarlet fever cases such continued low specific gravities are lost sight of because they may not commence until after the child has returned to apparent health, and probably not until after the hospital is left, the discipline of which has given place to that indulgence at home which will naturally take place after the enforced absence, the free and careless diet hastening those changes in the kidney which often end in such disastrous consequences. Hence the importance of re-examination in these cases for months after convalescence, and careful living and dieting in the meantime.

The virus of scarlet fever is perhaps the best to take as an example of conditions which have a specific devitalising effect on the kidney cells, though it is possible that a vicious circle may be established by the katabolic toxins themselves, intensified by errors in diet, acting as a deterrent to the physiological activity of these cells by lowering their vitality—and this is probably the commonest cause in those cases where a specific toxin cannot be traced or where such toxin can no longer be considered to be in action.

It would thus appear that a group of associated disorders, such as those which result as the sequelæ of certain fevers, can be explained as originating from the same toxins—namely, the uneliminated products of katabolism.

Hence, such theory would be in accordance with the opinion of those writers who believe in the identity of the poisons, whatever these may be, setting up the rheumatism and chorea following scarlet fever, and including the affections of the tonsils and naso-pharynx under the same causative agent or agents would naturally relegate these as "avenues of infection" for only such toxins as those of the exanthemata or those of microbic origin. It is, however, possible that either tonsillar or dental toxins acting over long periods may exert a deleterious effect on the vitality of the kidney eliminative cells, and thus set up a vicious circle causing rheumatism and chorea and other ills much as the toxin of scarlet fever, which, though of shorter duration, is, of course, much the more virulent.

I am, Sir, yours faithfully,

Liverpool, June 21st, 1917. WILLIAM BRAMWELL.

## THE LUMLEIAN LECTURES AND MEDICAL RESEARCH.

*To the Editor of* THE LANCET.

SIR,—Sir John Broadbent has given his impressions of some recent observations and conclusions of a small body of workers to whom, justly or unjustly, the term "new school" has been applied, and in the last sentence of his letter states that, "for the reasons given above I am unable to accept in its entirety the doctrine of auricular fibrillation." Considering this sentence with its full context, it may be that, in speaking of the "doctrine of auricular fibrillation," the reference is to the special conclusion that digitalis in this clinical condition has a very special action, but this point I leave aside for the moment. It is left to the reader to believe that Sir John Broadbent doubts the validity of the conclusion that fibrillation of the auricles, a well-known experimental condition, occurs in the human subject.

It is now seven years since I gave in full the evidence for the occurrence of fibrillation of the auricles in the human subject. The papers were published at a time when the cause of gross irregularity of the human ventricle was a matter of wide controversy, and they were published simultaneously with less exhaustive articles from workers in Vienna. I judge the effect of these papers as impartially as it is possible for me to do, and conclude that they carried conviction to all who were actively engaged in work upon the subject. The papers brought conviction because they contained an overwhelming weight of evidence, much of which has since been confirmed abundantly by other workers, and none of which has been called in serious question. At the present time the doctrine that auricular fibrillation occurs in the human being and is in man a common clinical condition is universally accepted by productive workers, and to me it seems superfluous to repeat the evidence, which is on available record. Judgment has been passed upon the conclusions by those who are competent to judge, and this judgment is entirely favourable: active workers who held other views of the causation of the condition abandoned those views when the new conclusion was formulated, No publication will shake the conclusion unless it records new facts directly which contradict it and

contains new and reasonable explanations of the manifold phenomena of the clinical condition so far described.

But it may be that Sir John Broadbent's reference is solely to the supposed specific action of digitalis. Upon this question his view is clearly stated: "It is not merely in auricular fibrillation that digitalis is of value. Any clinician knows the extraordinarily satisfactory results obtained from the administration of digitalis in cases of heart failure and dropsy associated with mitral incompetence, even when the pulse is quite regular and there is no question of 'auricular fibrillation.'" It is clear that if *one* clinician has such knowledge, digitalis has the action here credited to it. But the clinician must show the source of his knowledge; he must bring forward the evidence for his faith. In regard to digitalis, there is on record at the present time a large number of cases of auricular fibrillation in which the effects of the drug have been observed closely and in which the rate of the ventricle has been shown beyond doubt to be controlled by the drug. These observations have been conducted on scientific lines. There are few instances, probably no instances, in which a medicinal remedy has been more carefully explored in a given malady. Casual bedside observations are not to be weighed in the same scale. There is no comparable series in which, with a normal sequence of chamber contraction, digitalis has been shown to have a similar effect or, in fact, any striking beneficial effect. If Sir John Broadbent can compile such a series; if he can place on record a number of observations in which "extraordinarily satisfactory results" follow the administration of digitalis when the heart's action is regular; if he can show that these results come from the administration, and not from other factors in the patient's environment (as has been done in the case of those suffering from fibrillation), I for one will freely acknowledge that he has performed for mankind generally and for his fellow-practitioners a signal service. But the bald statement that it is so is valueless; the series is not now forthcoming, and until it is forthcoming the conclusion cannot gain acceptance.

When Sir John Broadbent discusses the meaning and effects of digitalis slowing in auricular fibrillation he shows that he is not conversant with the facts or with contemporary thought. He writes: "The irregularity of rhythm in the ventricle in auricular fibrillation is attributed, so far as I am aware without any sufficient evidence, to the irregular transmission of feeble, incoördinate stimuli from the flickering fibres of the fibrillating auricle, which one would not suppose capable of exciting a contraction in the ventricle. But even admitting this, how can the mere cutting off of a few nervous impulses from auricle to ventricle by itself restore the functional efficiency of a heart muscle which has broken down under stress?" Now it is true that the irregularity of the ventricle is attributed to irregularly transmitted impulses from the auricle; and for this there is very powerful, if not convincing, evidence. That these impulses are *feeble* is pure supposition; we have no knowledge of their strength and no right to suppose them to be feeble; yet this description, gratuitously introduced, becomes the main point of attack. That the impulses are nervous is similarly a gratuitous addition to the contemporary hypothesis; yet Sir John Broadbent complains that the "neurogenic doctrine has been exalted to a position of undue importance."

The "mere cutting off" of a few impulses has a restorative effect upon a ventricle working under stress precisely because it relieves that stress by slowing an accelerated ventricle. Sir John Broadbent can hardly deny either that the ventricle is slowed by digitalis when the auricle is fibrillating or that the efficiency of the ventricle is increased by a reduction of its accelerated rate. But yet he will have it that the beneficial action of the drug is not of this kind, but that it acts as a "pick-me-up" for the exhausted muscle. "Pick-me-up" is not a particularly precise term in speaking of cardiac functions, but it is to be gathered that an increase in the strength of the contractions or of the muscle tone is in his mind. In support of this view he quotes Professor Cushny. There is no evidence of either of these effects in the human heart, and the subject is dismissed in almost as many words by Professor Cushny. When Sir John Broadbent quotes Professor Cushny as having found the heart to be slowed "*by direct action on the muscle*," he should add that the author he quotes is referring to the special muscle of the auriculo-ventricular bundle and not to the muscle of the ventricle, and that the drug is supposed to act upon this special muscle, not as a "pick-me-up," but as a poison which depresses its power of conduction. The current explanation of digitalis slowing is that which I put forward in my original papers—namely, that it is the effect of heart-block produced in the A.-V. tissues. This conclusion has been accepted generally; it does not include the recently added hypothesis that the action is indirect through the vagi. That hypothesis is still very much *sub judice*, and constitutes, so it seems to me, the chief outstanding point upon which controversy is permissible. But the point will be settled when it is settled, not by argument, but by further observations.

In so far as there are two schools, an old and a new, in cardiology, there are two schools in the following sense. There is a small body of workers who spend their time and energies in the collection of new knowledge, a body of workers who insist upon proof to demonstration or an approach to that ideal. This school, if school it be, has been productive, some would say extremely productive, during the past few decades. There is, on the other hand, a large number of clinicians who speak and write largely upon questions of cardiac pathology, but who do not demand or seek exacting proofs, but are content, as far as these questions are concerned, with a more philosophic and therefore more indolent attitude. This school, if school it be, is sterile; it is sterile because of its method of thought and inquiry. This division of medical thinkers has always existed, always will exist, and between the two schools an under-current of opposition is inevitable; one reason of its being inevitable is that the worker who unearths new facts regards those facts as primarily his property; he has a special and deep interest in them; they are his own children; he resents their being mauled; he resents the scolding of those children by any childless neighbour who regards them as young ruffians who disturb his peace. Those who have children, from the intimacy of their knowledge of them and their surroundings, from their sympathy for them, are most competent to rear them; those who discover new facts are most competent, in most instances alone competent, to weave these facts into a harmonious setting in the mass of human knowledge.

I am, Sir, yours faithfully,

THOMAS LEWIS, M.D. Lond.

Military Hospital, Hampstead, June 24th, 1917.

## AN ARMY MEDICAL RESERVE: A PROPHETIC PROPOSAL.

*To the Editor of* THE LANCET.

SIR,—On Dec. 8th, 1904, the *Times* published a letter from me on the subject of an Army Medical Reserve. The letter contained a scheme I promulgated for establishing "auxiliary military hospitals" in connexion with, and affiliated to, the great general hospitals throughout the Empire. The staff was to be furnished by the junior staff of each hospital whose name it would bear. The matter was placed before the War Office authorities and some correspondence ensued, but nothing was done. Lately the matter has come up again in a pamphlet by Sir J. K. Fowler, which you reviewed in your issue of June 2nd. This scheme is on all fours with my scheme (see the enclosed extracts from my letter to the *Times*). I am sure you will agree with me that it is interesting to-day to reproduce the views of more than 12 years ago, which are now being adopted. I am, Sir, yours faithfully,

GEORGE STOKER,
Major, R.A.M.C.

Q.A.M.H., Millbank, London, S.W., June 13th, 1917.

*Extract of a Letter entitled, "An Army Medical Reserve," published in the "Times" on Dec. 8th, 1904.*

Where, then, it may be asked, are the right men to be found—men of suitable age, with requisite knowledge and practice, with an up-to-date training, those who have no ties, domestic or professional, which would prevent them being called up suddenly for service? They are to be found in connexion with every general hospital throughout the Empire, especially those that have medical schools and nursing homes attached to them. There are always to be found connected with such institutions a number of fully-qualified men who have lately occupied the posts of house physician or house surgeon, or who are acting as demonstrators, or assistants in the out-patient or other departments, who, to use a medical phrase, "are waiting for the wards." These and some senior medical students are the class of men required in the work. They are all known to one another, are picked men who have the honour and credit of their school and hospital very much at heart.

The nurses will be found in the same place with the necessary qualifications and surroundings. The orderlies could be recruited from the St. John trained orderlies in the district around the hospital.

The scheme for an Army Medical Reserve that I proceed to outline consists in the organisation of a system which shall embrace a number of units called civilian auxiliary hospitals, to be set on foot in times of peace and called out for service in times of war and stress. These hospitals would be organised in connexion with, and affiliated to, the general hospitals throughout the Empire. Such institutions would afford an ample and continuous supply of efficient physicians, surgeons, and nurses.

It would perhaps simplify matters if I describe shortly the formation of such a unit in connexion with a London general hospital. Let us call it St. George's Civilian Auxiliary Hospital No. 1. It is suggested that each hospital should be organised and equipped to contain 200 beds, but be capable of expansion to accommodate nearly twice that number. It is a universal experience that medical and surgical work in time of war comes in rushes, either during epidemics or after great battles, and for this reason it is absolutely necessary that hospitals should be capable of expansion.

## THE SIGNIFICANCE OF CAPILLARY MARKINGS IN PULMONARY TUBERCULOSIS.

*To the Editor of* THE LANCET.

SIR,—In THE LANCET of March 4th, 1916, I called attention to the significance of certain red surface-markings in the neighbourhood of the upper dorsal vertebræ and their relation to pulmonary tuberculosis. I now have further figures to offer.

Notes of 481 consecutive cases were taken, all of which have been notified to their respective sanitary authorities. 130 were seen in the out-patient department of the Manchester Northern Hospital for Women and Children, the cases over 15 years of age being females.

| | Ages in years. | | |
|---|---|---|---|
| | Under 6. | 6–14. | Over 15. |
| Showing marks ... ... ... | 25 ... | 59 ... | 21 |
| ,, none ... ... ... | 3 ... | 17 ... | 5 |
| | 28 ... | 76 ... | 26 |

80 per cent. therefore of the tuberculous out-patients showed markings.

Notes of 351 consecutive cases were taken at the Glossop and Chinley Tuberculosis Dispensaries and include in each age-group both sexes. The cases were sent to the dispensaries by their own doctors or by the school medical officers, or were contacts. 288 showed no tubercle bacillus to the usual examination, and 63 were returned as positive.

| | Ages in years. | | | |
|---|---|---|---|---|
| | Under 6. | 6–14. | 15–19. | Over 20. |
| Showing markings ... ... | 14 ... | 92 ... | 18 ... | 68 |
| ,, none ... ... ... | 7 ... | 55 ... | 22 ... | 75 |
| | 21 ... | 147 ... | 40 ... | 143 |

The 63 cases which showed tubercle bacillus in the sputum are classified as folllows:—

| | Ages in years. | | | |
|---|---|---|---|---|
| | Under 6. | 6–14. | 15–19. | Over 20. |
| Showing markings ... | 1 (dead) ... | 4 ... | 1 ... | 17 (1 dead) |
| ,, none ... ... | 2 ... | 4 ... | 2 ... | 32 (11 dead) |
| | 3 ... | 8 ... | 3 ... | 49 |

Of the whole number, 57 per cent. showed the markings and 43 per cent. have no markings, whilst in those who were returned as having the tubercle bacillus in the sputum 36 per cent. had markings and 64 per cent. had none.

The incidence of the death-rate is three times as great in those free from the markings compared to those showing markings. I am, Sir, yours faithfully,

Manchester, June 21st, 1917. R. CRAWSHAW HOLT.

## THE TREATMENT OF TONSILLAR INFECTION.

*To the Editor of* THE LANCET.

SIR,—In your issue of June 2nd Dr. F. J. Poynton rightly draws attention to the large part that tonsillar infection plays in rheumatism. The prevailing opinion, at any rate with regard to the etiology of the more chronic forms, is to consider them primarily due to sepsis of the teeth. How often the tonsils get overlooked it is impossible to hazard. It is surprising, when a routine examination is made, from how many tonsils purulent matter may be exuded. The tonsils are commonly regarded as filters which deal with the organisms of the mouth. Once they have become a cesspool their use as natural immunisers has gone and radical enucleation would seem to be the only course to pursue. The body thus loses a most valuable protective organ, which not even the prolonged use of a vaccine of the predominant organism, usually a short streptococcus, will entirely make good.

But the question arises, Is there no means of saving the tonsils? Dental surgeons are now making efforts to cope with pyorrhœa in order to save the teeth. Can no means be found to save the tonsils? With this object in view I have recently been making use of a Bier's cupping apparatus, specially adapted for tonsil application. With a little practice it can be readily applied, and though very uncomfortable the patient soon gets accustomed to its use and can even learn to apply the instrument himself. It is surprising with what ease by this means pus can be squeezed out from the tonsils. The method, systematically and regularly applied, should do much to cleanse badly infected tonsils and give them a chance of recovering their normal powers. In several instances patients have quickly realised the relief afforded and have been only too anxious to continue the treatment.

At the present moment scores of soldiers are being thrown out of action by subacute and chronic rheumatism, some few of whom become hopeless cripples. In order that physical and thermal treatment should be used to the best advantage the early and vigorous treatment of sepsis wherever it lies should be thoroughly undertaken, and no advantage should be made of the fact that spontaneous subsidence of the septic focus will very often occur, for just as often it does not, and constant recurrences of rheumatism are only too common after apparent cure in patients whose throats, sinuses, or other foci apparently, but do not really, clear up. I am, Sir, yours faithfully,

Bath, June 20th, 1917. G. HELY-HUTCHINSON ALMOND.

## SEROUS IRIDO-CYCLITIS.

*To the Editor of* THE LANCET.

SIR,—In the report in your issue of June 23rd of the meeting of the Section of Ophthalmology of the Royal Society of Medicine not one word is mentioned of what I for many months past have looked upon as one of the prime factors in the causation of those cases of serous irido-cyclitis (keratitis punctata, &c.)-which, through the admirable and thorough work of Mr. W. Lang and others, have been—and I consider correctly—put down as frequently the result of pyorrhœa alveolaris. This complaint, serous cyclitis, is common enough in both sexes, but, in my experience, is far more frequently met with in the female, and at any age, roughly speaking, between 35 and 65; it is not found in very young or very old and edentulous people. Women certainly outnumber men, yet that would not account for the difference in the proportion affected; they pay quite as much attention to their teeth as the opposite sex, yet they more frequently fall victims to this serious complaint—and it is a very serious one. Why is this? It is not due to a less-resisting power of the female sex, nor to any idiosyncrasy thereof, but the missing link is constipation, and of that I have no manner of doubt, no possible doubt whatever. Women are far more constipated than men; they are more sensitive on the matter, and do not like to be seen repairing to, or issuing from, lavatories; they from early girlhood often neglect themselves in consequence. Again, they take less exercise, drink less fluid, are more careful and finicking in their diet, avoiding coarse foods more than we do, and—except in the case of the modern young lady—they smoke less or not at all; all this conduces to a sluggish state of the bowels. So, consequently, ptomaines—or whatever they are—passing in equal degree into the alimentary canals of both sexes, stand a much better chance of being absorbed into the lacteals or blood-vessels of the gut and "coming out in the eyes."

This theory fits in with practical experience, for all these patients are constipated, both men and women, some of them very much so; or, if they say their bowels are regular and act daily, the motions will be found dry and hard, absorption of the more fluid part having taken place. The treatment, therefore, is comparatively simple: whatever one treats one must not neglect the bowels, the teeth, or the

tonsil crypts; magnesia or soda should be given every morning in plenty of hot water or hot tea, the first thing on rising; if in water, the juice of half a lemon or a few grains of powdered ginger make it more palatable and prevent griping. These patients are greatly benefited by this plan of campaign and their feeling of well-being as the bowels get to act daily is pronounced.

Serous irido-cyclitis—as Mr. Lang has pointed out—may come from almost any source of septic absorption, and I have recently been treating a married lady with this complaint who had a vaginal discharge with ulceration of the cervix as the only likely cause; and in another very interesting case in a man the *fons et origo malorum* seemed to be septic absorption from very badly ingrowing toenails, the matrix thereof being in a foul and ulcerated state; the removal of the offending nails was rapidly followed by improvement and cure. I am, Sir, yours faithfully,

Norwich, June 26th, 1917. S. JOHNSON TAYLOR.

## PUBLIC HEALTH APPOINTMENTS.

*To the Editor of* THE LANCET.

SIR,—Many people interested in public health regret that at a time when the Ministry of Health is under consideration there is apparently an absence of any attempt to prevent the continuation of the evils of the past *régime*—notably, the absence of coördination of effort and the multiplication of minor public health "specialist's" posts—blind-alley occupations. The Council of the Society of Medical Officers of Health has pronounced against such posts, and yet advertisements are continually appearing for whole-time medical officers for child-welfare centres. The prospects held out by such appointments must at present and for some considerable time yet be unsatisfactory, not only from a financial but also from a clinical point of view. Although the salary offered is adequate for a recently qualified practitioner, yet it will not be sufficient in a few years when the medical officer finds it does not lead to a more highly remunerated post and has lost valuable years during which a private practice could have been built up. It cannot be reasonably urged that these appointments are similar to those of resident medical officers to hospitals and that they afford an excellent training for private practice. The clinical interest of child-welfare work, although considerable, is limited. Much better work will be done by a medical officer who has an opportunity of carrying out other public health work as well, especially the medical inspection of school-children—an arrangement essential for the adequate coördination of the work carried out for children.

At the present time, when there is a shortage of civilian medical practitioners, it would seem advisable to arrange for this work to be carried out temporarily by general practitioners over military age. This course would have the important advantage of not penalising the large number of medical officers already in public health who have left their homes to serve with the forces. When the Public Health Service is being built up, who will see that these men are not forgotten? I am, Sir, yours faithfully,

June 24th, 1917. EFFICIENCY.

*** There is a strong feeling that no new civil appointments should be permanently filled while the war is in progress.—ED. L.

## THE LANCET, VOL. I., 1917: THE INDEX.

THE Index and Title-page to the volume of THE LANCET completed with the issue of June 30th will be ready in July. Owing to the continued shortage in the paper-supply, the Index will not be issued with all copies of THE LANCET, as was the custom prior to the War. Subscribers who bind up their numbers are requested to send a post-card to the Manager, THE LANCET Office, 423, Strand, London, W.C. 2, when a copy of the Index and Title-page will be supplied free of charge.

# The War.

### THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

*Killed.*

Capt. C. A. Whittingham, R.A.M.C., attached Royal Fusiliers, qualified at Glasgow in 1916, and thereupon joined up.

Capt. S. Pool, M.C., R.A.M.C., attached Leicestershire Regt., qualified at Liverpool early in 1916, and shortly afterwards joined the R.A.M.C. The award of the Military Cross was announced in THE LANCET of Dec. 2nd, 1916, p. 959.

*Died.*

Lieut.-Col. F. W. H. D. Harris, R.A.M.C., was educated at University College, London, and qualified in 1880. He held appointments at the West Kent General Hospital, Maidstone, and at Teignmouth Infirmary, and was secretary of the R.A.M.C. Fund and Benevolent Society.

Capt. J. Neligan, R.A.M.C., qualified in Ireland in 1915, and joined the R.A.M.C. shortly afterwards.

Capt. F. H. Knaggs, R.A.M.C., was a student at Guy's Hospital, and qualified in 1887. He had held appointments at Gloucester Infirmary, at Guy's Hospital, and at Leeds Infirmary, and was in practice at Huddersfield. On joining the R.A.M.C. he became ophthalmic and aural surgeon at the Huddersfield Infirmary and War Hospital.

*Wounded.*

Capt. G. W. Armstrong, R.A.M.C., attached N. Staffs. Regt.
Capt. S. K. McKee, R.A.M.C.
Capt. C. A. Webster, R.A.M.C.
Capt. E. R. Mackay, Aust. A.M.C.
Capt. N. Prior, N.Z.M.C.
Capt. G. W. Watson, R.A.M.C., attached R.F.A.
Capt. C. D. Coyle, R.A.M.C., attached Hamps. Regt.
Capt. G. S. Glass, R.A.M.C., attached Hamps. Regt.
Capt. J. C. G. Glassford, Aust. A.M.C.
Capt. C. M. Samson, Aust. A.M.C.
Capt. E. B. Thomas, Aust. A.M.C.
Capt. R. C. Winn, Aust. A.M.C.
Capt. R. P. Smith, R.A.M.C., attached R. Lanc. Regt.
Capt. J. G. Sweeney, Aust. A.M.C.
Capt. C. J. L. Patch, R.A.M.C., attached R. West Surrey Regt.

### CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Capt. E. N. Nicholson, Hussars, died from illness contracted in France, only son of Dr. A. Nicholson, of Brighton.

Second Lieut. W. H. G. Compton, Royal Field Artillery, killed in action, eldest son of Capt. W. H. Compton, R.A.M.C., of Brighton.

Second Lieut. W. A. Menzies, Royal Garrison Artillery, died of wounds, only son of Dr. J. A. Menzies, of Folkestone.

Second Lieut. C. D. N. Caleb, Devonshire Regt., killed in action, son of Dr. C. C. Caleb, Professor of Physiology, Medical College, Lahore, India.

Lieut. R. M. Herron, R. Sussex Regt., died of wounds, eldest son of the late Dr. J. Herron, of Green Lanes, London.

Capt. P. C. Taylor, London Regt., previously reported missing, now officially presumed killed, fourth son of the late Dr. H. Taylor, of Kennington, London, S.E.

Second Lieut. J. W. Spanton, Rifle Brigade, died of wounds, third and only surviving son of Mr. W. D. Spanton, F.R.C.S., of Hastings, and formerly of Hanley, Staffs.

Capt. A. F. Gulland, The Buffs, died of wounds, only surviving son of Surgeon-General A. D. Gulland, of Cheltenham.

Capt. F. L. Davy, Australian Imperial Forces, killed in action, only son of Lieut.-Col. H. Davy, C.B., R.A.M.C., of Exeter.

Second Lieut. H. B. Graham, Black Watch, killed in action, younger son of Lieut.-Col. R. B. Graham, V.D., R.A.M.C., of Leven, Fife.

### FOREIGN DECORATIONS.

The following decorations have been conferred upon members of the staff of the Hôpital Auxiliaire 301, Royaumont, by the President of the French Republic:—

*Médaille d'honneur des Epidémies en Or.*—Miss Ivens, M.B., M.S. Lond., chirurgien-en-chef.

*Médaille d'honneur des Epidémies en Vermeil.*—Miss R. Nicholson, M.B., B.S. Dunelm, Mrs. J. A. Berry, M.B. Lond., Miss M. Ross, M.B., Ch.B. Glasg., Miss M. Wilson, M.B., Ch.B. Edin., chirurgiens; Mrs. Savill, M.B., Ch.B. Glasg., radiologiste; Miss E. Courtauld, L.S.A. Lond., anesthésiste.

# OBITUARY OF THE WAR.

## WILLIAM GORDON CUMMINGS, M.B., B.S. R.U.I., D.P.H.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain W. G. Cummings, who was killed in action last month, at the age of 36 years, was a native of Dungannon, co. Tyrone. Educated at Queen's College, Belfast, he graduated in 1903 M.B., B.S. of the Royal University of Ireland, obtaining later the Diploma in Public Health. After a resident appointment at the Richmond Hospital, Dublin, he settled in practice at Hanwell, where he had been for 12 years before joining the R.A.M.C. Territorial Force in January, 1915. He was struck by a shell which exploded in the dug-out in which he was attending to the wounded. His senior officer writes of Captain Cummings as a man on whom he placed the greatest reliance, who was always cheery under the most adverse circumstances.

## WILLIAM TRENGWEATH HARRIS, M.R.C.S. ENG.,

LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant W. T. Harris, who was killed on April 15th on the transport *Cameronia* in the Eastern Mediterranean, was 40 years of age, and the son and grandson of medical men, his father having been medical superintendent of Norwich City Asylum, and his grandfather in practice at Redruth, Cornwall. He was educated at Norwich Grammar School, taking his medical course at St. Thomas's Hospital and qualifying in 1903. After holding an appointment as assistant medical officer at Wakefield Asylum he settled in private practice in Chiswick, where he had a large panel practice, which sometimes employed 15 or 16 hours of his time daily. In February of this year he received his commission in the Royal Army Medical Corps and was sent to Egypt, which he was destined never to reach.

A fellow practitioner writes of Lieutenant Harris as a true friend and colleague, and one who devoted himself with great unselfishness to his poorer patients, supplying them in case of need with food and clothing as well as medicine. He was a well-grounded anatomist and sound practitioner, never at a loss in an emergency, extremely kind, gentle, sympathetic, and considerate. Apart from his professional attainments, he was a born musician and accomplished violinist, a cultured gentleman, and a fluent French scholar, so much so that his house was from the first open to Belgians in distress who could not converse in English—indeed, one of these, a chemist, resided with him nearly a year, and subsequently corresponded with him from France.

## ARCHIBALD McKERROW RUSSELL, M.B., CH.B. GLASG.,

SURGEON, ROYAL NAVY.

Surgeon A. McK. Russell, who was reported missing, feared drowned, on the s.s. *Highland Corrie* sunk on May 16th, was 26 years of age, and son of Thomas Russell, of Newmains, Lanark. He was educated at Newmains School and Hamilton Academy, taking his medical course in Glasgow University, where he graduated in 1914. He held a resident appointment at the Western Infirmary, and at the beginning of August, 1914, he became a surgeon in the Royal Navy, serving for more than two years on the *Macedonia*, in which he was present at the Falkland Islands engagement. After having given up an earlier passage to a colleague he was returning for his second period of leave when the steamship on which he sailed was torpedoed. The boat on which he was being lowered capsized and he was last seen attempting to save a fellow passenger with her baby. His friend who reached this country safely tells of his keenness on his work and acute observation of life which tended greatly to mitigate the extreme monotony of their life at sea and its routine duties. Surgeon Russell was a keen cricketer.

## GURTH SWINNERTON BLANDY, M.D., CH.B. EDIN.,

MILITARY CROSS,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain G. S. Blandy, who died on active service on April 24th at the age of 38, was the third son of Colonel W. P. Blandy, Royal Artillery. Educated at Sheffield Royal Grammar School and Edinburgh University, he graduated M.B., Ch.B. in 1902 and M.D. in 1912. While a student at Edinburgh University he was a member of the Volunteer Artillery, serving as a combatant in the South African War with the Imperial Yeomanry, when he was invalided with enteric fever. After graduating he filled resident posts at the Scarborough and Norfolk and Norwich Hospitals. On the outbreak of war he was senior assistant medical officer to the Middlesex County Asylum at Napsbury, where he had served from the opening of the asylum in 1905. He at once joined the Royal Army Medical Corps, serving first at home, then in Egypt and through the whole of the Gallipoli campaign, and finally in France. He was awarded the Military Cross in Gallipoli for "attending French and British wounded without cessation from 11 P.M. on 1st until midday on 2nd May, 1915, under rifle fire the whole time." He received shell-wounds on April 23rd to which he succumbed on the following day.

Captain Blandy's superior at Gallipoli writes of him as "first-class at his job; he never spared himself in any way"; while a combatant officer alludes to his loss as that of an old and staunch friend: "He never spared himself in his care of us, and it was indeed due to this unselfish habit of his that he came by the wound which resulted in his death." His chief at the County of Middlesex War Hospital, Napsbury, endorses this view of Captain Blandy.

### ANOTHER RED CROSS HOSPITAL IN DUBLIN.

Arrangements are being made by the joint committee of the St. John Ambulance Association and the Co. Dublin Branch of the British Red Cross Association to equip and maintain another voluntary Red Cross hospital in Dublin. Premises have been secured at Glasnevin, and the preparatory work is nearly complete. The hospital will accommodate some 250 beds. It will be in surgical charge of Mr. Seton Pringle, surgeon to Mercer's Hospital, who has worked for several months in the Urgency Cases Hospital at Revigny.

In view of the present difficulty of transporting the wounded to Ireland, and the consequent fact that for several months past there has been an excess of hospital accommodation for soldiers in Dublin, the enterprise of opening a new Red Cross Hospital in Dublin requires some justification, for the managers of the Dublin Castle Red Cross Hospital, which has been working since early in 1915, cannot obtain ready and sufficient voluntary subscriptions.

THE subscriptions which have been given in connexion with the Scottish Blinded Sailors' and Soldiers' Hostel, Newington House, Edinburgh, now amount to £13,565.

## THE SERVICES.

### ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been notified:—Deputy Surgeon-General O. W. Andrews to *New Zealand*. Fleet-Surgeon P. M. May to *Pembroke*, additional, for East London Recruiting District.

### ARMY MEDICAL SERVICE.

Temp. Col. J. W. Bridges, Canadian A.M.C., vice Col. G. S. Rennie, and Temp. Col. H. A. Chisholm, D.S.O., Canadian A.M.C., vice Lieut.-Col. C. A. Peters, to be Assistant Directors of Medical Services.

Temp. Major F. B. Carron, Canadian A.M.C., to be Deputy Assistant Director of Medical Services.

Temp. Col. H. G. Barling (Lieut.-Col., R.A.M.C., T.F.), relinquishes his temporary commission on re-posting.

TERRITORIAL FORCE.

Lieut.-Col. H. Collinson, D.S.O., to be temporary Colonel whilst holding the appointment of Assistant Director of Medical Services.

Capt. A. Ramsbottom to be Deputy Assistant Director of Medical Services.

### ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. O. L. Robinson, C.M.G., to be Brevet-Colonel on appointment as an Honorary Physician to the King.

Major R. B. Hole relinquishes the acting rank of Lieutenant-Colonel on re-posting.

D. B. King to be temporary Major whilst serving with the Horton (County of London) War Hospital.

Capt. L. R. Meech, M.C., to take rank and precedence as Captain as if his appointment to that rank bore date April 21st, 1917.

Temp. Capt. O. E. Farley, C.A.M.C., to take rank and precedence in the Corps and in the Army as if his appointment as temporary Captain bore date April 30th, 1917.

To be temporary Captains: Temp. Lieut. M. S. Fraser, M. H. Paterson, J. H. White, and Temp. Lieuts. L. J. O'Donovan, W. H. Marshall, T. G. Featherstonhaugh, J. Harvey, E. G. Saunders, J. Neligan, J. E. Ashby, A. Buchanan, W. L. O'Neill, J. L. Falconer, H. M. Jackson, J. P. Crawford, A. R. C. Doorley, R. M. de Mowbray, E. L. K. Sargent, W. Macadam, T. G. Evans, D. J. Harries, S. A. Burn, J. Keyms, E. H. Price, T. L. Jones, J. Cairns, W. G. Marsden, G. N. Brandon, A. M. A. James, A. E. Goldie, H. H. Fairfax, S. G. J. Dowling, F. Simpson, T. F. Wilson.

J. A. Gibb, late temporary Captain, to be Honorary Captain.

Officers relinquishing their commissions: Temp. Major R. C. Tweedy (on account of ill-health). Temp. Capts.: H. H. K. Sparrow, J. R. Robertson, J. E. Phillips, A. R. Roche, D. F. Kennard, E. E. Frazer, C. Coventry, C. H. Armitage, T. H. Phillips, H. Crichton. Temp. Lieut. C. W. Gittens (on account of ill-health).

SPECIAL RESERVE OF OFFICERS.

Major James C. Furness to be acting Lieutenant-Colonel whilst commanding troops on a hospital ship.

Lieut. (on probation) J. K. R. Landells is confirmed in his rank.

Lieutenants to be Captains: A. G. P. Wills, R. W. H. Miller, L. A. B. Moore.

To be Lieutenants: J. I. Keen (from University of London Contingent O.T.C.), D. Henegan (from Durham University Contingent O.T.C.), S. T. Alexander, C. G. G. Winter.

TERRITORIAL FORCE.

Lieut.-Col. F. Marsh is seconded whilst holding the appointment of Assistant Director of Medical Services.

Major J. E. H. Sawyer to be acting Lieutenant-Colonel whilst holding the appointment of Administrator.

Hon. Capt. F. C. Bentz (late Capt.) to be Captain, with precedence as from April 1st, 1915.

Capt. A. Ramsbottom is seconded whilst holding the appointment of Deputy Assistant Director of Medical Services.

Capt. J. M. A. Costello, to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

Lieut.-Colonel H. Collinson, D.S.O., is seconded whilst holding the appointment as Assistant Director of Medical Services.

Officers seconded for duty with a General Hospital: Capts. H. W. Wilson, J. H. Thursfield, and N. S. Finzi; Lieut.-Cols. E. M. Callender and T. W. Westmacott; Majors F. J. Steward and J. H. Ray; Capts. W. S. Colman, F. D. S. Jackson, and M. Horne; Major G. N. Bigg; Capts. E. R. Carling, A. J. Jex-Blake, D. H. de Souza, G. A. Ewart, J. Everidge, D. Douglas-Crawford, J. Hay, H. Armstrong, C. T. Holland, V. C. de Boinville, W. C. Oram, G. M. Benton, G. B. Loveday, J. Wharton, F. E. Tylecote, and R. Ollerenshaw.

Lieut. A. C. Smith to be Captain, and to remain seconded.

*Attached to Units other than Medical Units:* Lieut. B. T. L. Glover to be Captain.

VOLUNTEER CORPS.

Durham Volunteer Regiment (9th Battalion): N. Philipson to be temporary Lieutenant and Medical Officer.

Northern Counties Highland Volunteer Regiment (1/1st Battalion): D. McFadyen (Surgeon-Lieutenant-Colonel, late Cameron Highlanders), to be temporary Captain and Medical Officer.

### INDIAN MEDICAL SERVICE.

The King has approved of the retirement of Brevet-Colonel Sir Bruce Seton, Bart. (in consequence of ill-health).

### CANADIAN ARMY DENTAL CORPS.

Temp. Major A. L. Johnson, from a Canadian Infantry Battalion, to be temporary Captain.

## Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

*Surgery.*—J. Hollings (Sections I. and II.), London Hospital; and C. A. Mortlock-Brown (Sections I. and II.), Royal Free Hospital.

*Medicine.*—W. A. Bibby, Manchester; C. A. W. Chapman (Section I.), Sheffield; S. C. Ho (Section I.), Cambridge and London Hospital; C. de C. W. Langdon (Sections I. and II.), Manchester; G. W. Pratt (Sections I. and II.), Cambridge; and C. Segal (Section II.), Berne.

*Forensic Medicine.*—W. A. Bibby, Manchester; A. G. Curzon Miller, Middlesex Hospital; and G. R. Sharp, London Hospital.

*Midwifery.*—D. C. Clark, King's College Hospital; E. W. Diggett, Jefferson College, Philadelphia; L. Dinerstein, London Hospital; and A. Magill, Guy's Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: W. A. Bibby, J. Hollings, C. de C. W. Langdon, and C. A. Mortlock-Brown.

VICTORIA UNIVERSITY OF MANCHESTER.—At an examination held in June the degree of M.D. (with commendation) was conferred upon W. Howarth Parkinson.

CENTRAL MIDWIVES BOARD.—Special meetings of the Central Midwives Board were held at Queen Anne's Gate Buildings, Westminster, on June 19th and 20th, with Sir Francis H. Champneys in the chair. A number of midwives were struck off the Roll, the following charges, amongst others, having been brought forward:—

Being in attendance as a midwife at a confinement and the patient suffering from abdominal swelling and tenderness, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (4); the patient being in the condition aforesaid, the midwife did not hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 20, and medical aid having been sought for the patient she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a). The midwife neglecting to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14; advising the patient to mislead the officers of the local supervising authority by abstaining from giving them information as to the condition of the patient; not being scrupulously clean in every way, as required by Rule E. 2; and not keeping her register of cases, as required by Rule E. 24. When attending a patient the midwife neglecting to wear a clean dress of washable material, and a clean washable apron or overall, as required by Rule E. 2; neglecting to disinfect her hands and forearms on each occasion before touching the generative organs of the patient, as required by Rule E. 4; and neglecting to swab the patient's external parts with an efficient antiseptic solution before making the first internal examination, as required by Rule E. 8. Being in attendance at a confinement and the child suffering from inflammation of and discharge from the eyes and continuing so to suffer, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5). Having been in contact with a person suffering from a condition supposed to be infectious, the midwife neglected to notify the local supervising authority of the fact, as required by Rule E. 6, and having been suspended from practice by the local supervising authority, in accordance with Section 8 (3) of the Midwives Act, 1902, and Rules F. 1 and 2 of the Regulations of the Central Midwives Board, she nevertheless disregarded the suspension and continued to practise as a midwife without having undergone disinfection to the satisfaction of the local supervising authority, as required by Rules E. 6 and F. 2. A midwife fraudulently procuring the burial of two infant children by falsely representing that the contents of a box were truthfully described in a certificate made and written by her, whereas in truth and in fact the said box contained the bodies of two infant children as well as the body of a stillborn child, as she well knew, and that therein she was guilty of misconduct

within the meaning of Section 3, V. of the Midwives Act, 1902. A midwife being herself liable to be a source of infection from a septic finger, she attended a patient without having undergone the disinfection required by Rule E. 6; being liable to be a source of infection as aforesaid, she neglected to notify the local supervising authority, as required by Rules E. 6 and 22 (1) (e); she neglected to disinfect her hands and forearms on each occasion before touching the patient's generative organs, as required by Rule E. 4, and in disregard of Rule E. 8 she neglected to wash the patient's external parts with soap and water and to swab them with an efficient antiseptic solution (1) after the termination of labour; (2) during the lying-in period when washing was required. In contravention of the provisions of Section 1 (4) of the Midwives Act, 1902, the midwife employed her daughter, an uncertified person, as her substitute, to visit a patient during the latter part of the puerperium. The midwife not giving every reasonable facility to the local supervising authority for the inspection of her register of cases, bag of appliances, &c., and her place of residence, and an investigation of her mode of practice, as required by Rule E. 25. Being in attendance at a confinement and one of the twin children being stillborn, no registered medical practitioner being in attendance at the time of birth, the midwife neglected to notify the local supervising authority thereof, as required by Rule E. 32 (1) (c); the other twin child suffering from dangerous feebleness, she did not explain that the case was one in which the attendance of a registered medical practitioner was required as provided by Rule E. 21 (5), and the said child having died before a registered medical practitioner was in attendance, she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (b). The midwife neglecting to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14, and falsely and fraudulently recording in her temperature-book certain particulars purporting to represent the daily temperatures of the patient as taken by her, when in fact these records were entirely fictitious, no such daily temperatures having been taken by her or on her behalf.

ROYAL MEDICAL BENEVOLENT FUND.—**At the last meeting of the committee, held on June 12th, 21 cases were considered and £196 voted to 17 of the applicants. The following is a summary of certain of the cases relieved:—**

Widow, aged 72, of L.F.P.S. Glasg. who practised at Rochdale and died in 1899. The little money left her by her husband now exhausted, and her only income is £1 per week from children, which has to keep her and a son, aged 51, who is a victim of the drug habit. She lives with a married daughter, who is in very poor circumstances. Voted £12 in 12 instalments.—Daughter, aged 57, of M.R.C.S. Eng. who practised at St. Day, Cornwall, and died in 1917. On the death of her father was left without means and her only income is now derived by acting as church organist and teaching music, which is very precarious. Pays £12 a year rent. Voted £12 in 12 instalments and referred to the Guild.—Widow, aged 33, of M.R.C.S. Eng., retired Captain, R.A.M.C., who practised at Caterham and died in March, 1917. Applicant's husband committed suicide, and her only income is the proceeds of an insurance policy. Has two children, ages 6½ and 4, and requires help towards their education. At present living with her father, who cannot afford to keep her. Voted £5 and referred to the Guild.—Widow, aged 39, of M.D. Glasg. who practised at Perth and died in 1916. On the death of her husband she endeavoured to sell the practice, but was not successful, as her husband had specialised in X ray work. Only income £56 a year from dividends. Has three children, ages 6–11. Lives in own house, but has to pay £16 a year for rates. Voted £10 in two instalments and referred to the Guild.—Widow, aged 33, of M.D. Dub. who practised at Redditch and died in March, 1917. Her husband was on civil military duty in North Wales and was awaiting a commission. He contracted acute pneumonia in the Army camp and died suddenly. Her only income is derived from investments on insurance money and produce about £60 per annum. There are two children, ages 1 and 4 years. Voted £10 and referred to the Guild.—F.R.C.S. Irel., aged 46, married, who practised in London. Applicant became infected with acute tuberculosis of the throat after examining a patient, and is now in a sanatorium. All his savings gone and unable to sell the practice, and only income a little allowed by his father-in-law. Voted £20.—Daughter, aged 44, of M.R.C.S. Eng. who practised at Notting Hill and died in 1885. Only income 5s a week allowed by sisters. Applicant quite incapable of earning her own living and her sisters unable to entirely provide for her. Her mother, who has recently died, was helped by the Fund for many years. Voted £5.—Daughter, aged 70, of M.R.C.S. Eng. who practised at Cranbrook and died in 1890. Applicant is quite incapable of working. Her income is only £46 per year, and she has to pay £1 per week for board and lodgings. Relieved 18 times, £182. Voted £12 in 12 instalments.—Daughter, aged 65, of M.R.C.S. Eng. who practised at Lydney and died in 1880. Lost the income left her by her father through a defaulting trustee. Too old to work. Only income £21 from another charity. Relieved 11 times, £116. Voted £12 in 12 instalments.—Daughter, aged 77, of M.R.C.S. Eng. who practised at Hackney and died in 1859. Applicant lost all her capital through a defaulting trustee. Has been operated upon several times for cataract. Only income £30 from another charity and £20 from friends. Pays £1 per week for board and lodgings. Relieved five times, £66. Voted £15 in 12 instalments.—Daughter, aged 65, of M.R.C.S. Eng. who practised at Liverpool and died in 1885. Applicant acted as matron at a mental nursing hospital for many years, but had to retire on account of rheumatism and deafness. Income from another charity and a dividend, £37. Relieved three times, £34. Voted £12 in 12 instalments.—Daughter, aged 53, of M.R.C.S. Eng. who practised at Box, Wilts, and died in 1894. In consequence of chronic ill-health unable to earn anything. Three sisters live together, only one of whom can work. One of the other sisters helped by the Fund. Relieved seven times, £96. Voted £12 in 12 instalments.—Widow, aged 62, of M.B. Dub. who practised in Acton and died in 1912. Applicant was left without means, but prior to the war her four children were able to help. Since the war, a son abroad, who used to pay her rent, has not always been able to help, and a daughter who lived with applicant broke her leg in February, and is still in hospital. Relieved four times, £25. Voted £10 in two instalments.—Widow, aged 52, of L.S.A. Lond. who practised at Leicester and died in 1910. Applicant was left without means, with four children, two of whom still go to school. The two eldest are now earning a little, but in consequence of applicant's ill-health and the high price of food cannot manage. Relieved five times, £60. Voted £12 in 12 instalments.—Daughter, aged 60, of M.R.C.S. Eng. who practised at Long Sutton and died in 1879. Applicant acts as housekeeper without salary, and her dividend is only £25 per year. Relieved twice, £24. Voted £12 in 12 instalments.—Widow, aged 70, of M.R.C.S. Eng. who practised in Jamaica and died in 1884. Applicant left without means. Has three children married with families, and unable to help. Income £26 from another charity, and a little help from friends. Pays 6s. per week rent. Relieved 12 times, £87. Voted £12 in 12 instalments.—Widow, aged 56, of M.R.C.S. Eng. who practised at Stockton-on-Tees and died in 1887. Applicant was left entirely without means, with two children to bring up. The son is now in the Army, and she gets 9s. 2d. per week Army allowance, and the daughter is a clerk, and allows her mother 14s. per week. Applicant has very bad sight. Relieved 13 times, £115. Voted £12 in 12 instalments.

THE King has appointed Mr. Edward Coker Adams a Member of the Executive Council and an Official Member of the Legislative Council of the Colony of the Gambia.

ORDER OF ST. JOHN OF JERUSALEM.—Mr. A. J. Johnston, M.R.C.S. Eng., L.R.C.P. Lond., has been promoted to Esquire in the Order of the Hospital of St. John of Jerusalem in England.

CENTENARIANS.—Mr. Thomas Weekes, of Ticehurst, has recently celebrated the 100th anniversary of his birthday, and Mr. C. Tearell, of Lympne, Kent, has died in his 102nd year.

INSANITY AND THE WAR.—**In his report for the past year on Kingseat Asylum, Aberdeen, Dr. H. de M. Alexander notes that men belonging to the services who have become mentally affected through the war are accommodated in the war mental hospitals, so that it is fallacious to assume from any statistics that there is a decrease of insanity throughout the country meantime. The report goes on to say that "on the resident population here the war has had little effect. The majority are keenly interested in it and read the papers with avidity. They have taken the lighting restrictions philosophically and are not in the least perturbed by any scares. If detrimental effect has occurred at all, it pertains only to one or two egotistical paranoiacs into whose domineering speech has crept the curious braggadocio and phraseology characteristic of the Prussian."**

DEATH OF WALTER JAMES HILL, L.R.C.P. LOND., M.R.C.S.—Mr. W. J. Hill, medical officer of health of Clevedon, Somerset, died recently at his residence in Clevedon from pneumonia, in his fifty-sixth year. The deceased was a student at the Bristol Medical School, and after holding several resident appointments at the Bristol Royal Infirmary, entered into partnership with the late Dr. S. Skinner, of Clevedon, and later succeeded to the practice. He held several public appointments and was medical officer of health of the town since 1902. He was also on the honorary medical staff of the Cottage Hospital, the local Dispensary, Walton Convalescent Home, and the Red Cross Hospital. Mr. Hill was surgeon-captain in the Gloucestershire Royal Garrison Artillery, T.F. He will be greatly missed in Clevedon, where he was highly respected, and much sympathy is felt there for his widow and daughter.

OXFORD OPHTHALMOLOGICAL CONGRESS, 1917.—**This Congress will take place at Keble College, Oxford, on July 12th and 13th. On the evening of the 11th there will be an unofficial dinner in the hall of Keble College. On the morning of the 12th the Master of the Congress (Mr. Sydney Stephenson) will welcome the members in the Department of Human Anatomy, kindly lent for the purpose by Professor Arthur Thomson, and a discussion on "The Correction of Errors of Refraction" will be opened by Dr. George M. Gould, of Atlantic City, New Jersey, and Lieutenant-Colonel Robert H. Elliot. At 8.15 P.M. the official dinner of the Congress will take place, under the presidency of the Vice-Chancellor of the University of Oxford, the Very Reverend T. B. Strong, D.D., Dean of Christ Church; and at 9.15 P.M. there will be a general meeting to discuss the proposal of affiliation with the Ophthalmological Society of the United Kingdom. On the following day the programme is as follows:—Dr. Edridge-Green: "The Relation of the Theory of Vision to Ophthalmology"; Dr. George Young: "A Few Remarks on Clinical Tests of the Colour Threshold"; Lieutenant-Colonel R. H. Elliot: "On the Indian Operation of Couching"; Dr. D. V. Giri: "Ring Infiltration of the Cornea in a Case of Purpura"; Captain P. H. Adams: "Some Points on Retro-bulbar Neuritis." At 2.30 P.M. cases will be shown in the Eye Hospital, and at 3.30 there will be a discussion of the cases and remarks by Dr. Johnson Taylor and Captain R. J. Coulter. The scientific museum and exhibition will be open in the department of human anatomy on the two days. Members who purpose to be present should send the attendance fee (10s. 6d.) to the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton, without delay, and state whether they desire rooms reserved in Keble College.**

# Obituary.

## ARTHUR WEBB JONES, M.D., B.S. LOND., F.R.C.S. ENG.,

SURGEON AND GYNÆCOLOGIST, GOVERNMENT HOSPITAL, ALEXANDRIA.

BY the untimely death of Arthur Webb Jones the British community in Alexandria and numerous friends have sustained a great loss.

Dr. Webb Jones was educated at Malvern and St. Thomas's Hospital, and took the diploma of F.R.C.S. Eng. in 1900. He then worked for the degrees of the University of London whilst engaged in active practice in Egypt, and became B.S. in 1911 and M.D. in 1913. As the subject of his thesis for the latter degree he selected "Bilharziosis in Women," and on this difficult question he was able to write authoritatively, owing to his wide experience in gynæcological surgery in Alexandria. For five years, 1900–1904, Webb Jones served in the Egyptian Army in the Soudan; and on leaving that country in order to settle in private practice in Egypt he received the official thanks of the Governor-General of the Soudan for his services. His merits and abilities were recognised by his appointments as medical officer for the Alexandria district to the Egyptian State Railway and of surgeon and gynæcologist to the Government Hospital there.

During the Gallipoli campaign, when the medical and surgical resources of Egypt were taxed to the uttermost, Webb Jones volunteered and did yeoman service for the British troops from May, 1915, to December, 1916. With him it was a subject of much heart-searching that he was not in khaki, but it was on the assurance of the military authorities that he was doing excellent work and could not give better help that he refrained from applying for a commission. There is no doubt that his strenuous labours indirectly shortened his life, which was closed by one of those tragedies only too familiar to medical men. He had not been out of Egypt since 1913, and when an epidemic of typhus fever broke out this spring in Alexandria, it found him fatigued and somewhat out of health, though keen as ever upon his duties. He was called upon to give an intravenous injection of saline solution to a brother practitioner, dying from typhus, and accidentally inoculated himself in doing so. In about 10 days the disease showed itself, and despite the assiduous and affectionate care of Colonel Sandwith, consulting physician, E.E.F., of Captain Charles Walker, R.A.M.C., and other friends, he succumbed to the infection. His funeral was attended by representatives of every official and administrative branch with which he was or had been connected, and by many private friends.

Of his abilities as a surgeon Colonel A. H. Tubby, A.M.S., consulting surgeon to the Mediterranean Expeditionary Force, who had recent opportunities of forming an opinion, writes as follows: "Webb Jones was a sound diagnostician, and a resourceful and skilful operator. His judgment was good and his successes numerous. Looking through his notebooks we find his cases carefully recorded; and he was in the habit of adding his subsequent impressions and investigations to the account of each case, thus continually crystallising his experiences and perfecting his knowledge and technique. As a colleague he was all that one could desire, and happy were those who were admitted to his friendship. A winning manner, entirely free from any trace of self-assertion, a broad outlook on life, and an obvious sense of complete responsibility, combined to render him a tower of strength in trouble and illness. Had he been permitted to reach the allotted span of life he would have gone far. He leaves a widow and a young family and numerous friends to grieve at his departure."

THE death occurred on June 20th of Thomas Sheldon, M.D. Edin., M.R.C.S. Eng. He was in his 83rd year, and had been in practice in Kensington for 54 years. He qualified as M.R.C.S. Eng. in 1859, and M.D. Edin. in 1863. He was educated at University College Hospital, London, and at the University of Edinburgh. He had been resident physician at the Royal Infirmary, Edinburgh, under Dr. James Warburton Begbie, and later medical officer of the Kensington and Notting Hill Division of the Post Office. A justice of the peace for the County of London, he was the eldest son of William Sheldon, J.P., of Stratford-on-Avon. Two of his sons are in the medical profession, the eldest at present a lieutenant in the Royal Army Medical Corps, and the other a fleet-surgeon in the Royal Navy.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

*The Report of the Mesopotamia Commission.*

THE report of the Commission to inquire into the Operations of the War in Mesopotamia was presented to Parliament on Tuesday last, and in many directions disclosed lamentable ignorance and laziness as well as ill-founded optimism on the part of the military and civil authorities who were responsible for the planning of the campaign. The breakdown in medical arrangements was not made the subject of a separate report, as had been expected, but forms the whole of a separate section of the general report. In this part of the report the Commission criticises the work of Surgeon-General BABTIE, who was Director of Medical Services in India up to June, 1915, although admitting that his experience in his post when the war broke out had been very short, and that he had to work in an atmosphere unfavourable to reform. But no excuse is made by the Commission for the action of Surgeon-General HATHAWAY, who, as Principal Medical Officer in Mesopotamia, officially reported "Wounded satisfactorily disposed of," and throughout the campaign suppressed the unpleasant. The Government will be pressed to give a day for a discussion of the report.

*Military Service (Review of Exceptions) Act.*

In the course of debate in the House of Commons on Thursday, June 21st, Mr. MACPHERSON, the Under Secretary for War, announced that the Government is willing to appoint a small Parliamentary Committee to examine into the working of the Military Service (Review of Exceptions) Act. The administration of the statute and the system of medical re-examinations which have taken place under it have given rise to considerable criticism in the House of Commons, and the subject was reviewed by speakers in all quarters. The discussion took place in Committee of Supply on Army Estimates.

Mr. PRINGLE introduced the subject by moving a reduction of £100 in the salary of the Secretary of State for War. His object, he said, was to call attention to what he thought might be described as the scandals in connexion with the medical re-examination of discharged and rejected men under the Military Service (Review of Exceptions) Act. When that Act was passed some months ago assurances were given that if the re-examination were carried out, it would be carried out with exceptional care and kindness. But the recruiting authorities had shown absolutely no discretion and discrimination in the way in which they had called men up. In nearly every area in the country they had sent out notices for re-examination not only to men who had obtained fraudulent exemption or had been carelessly examined or who, they had reason to believe, had improved in health, but they had called upon the halt, the lame, the blind, the mute, the mad, and even the dead to appear before the examining boards. When men were actually admitted to re-examination they were, as a rule, treated with the utmost harshness. If they presented any evidence at all regarding their medical condition—and they were entitled to do that for the guidance of the medical board, and, indeed, in the House of Commons they had been invited to do that—the certificates were systematically ignored and often torn up in their faces. The examination itself was often of the most perfunctory character. It was true that there were usually three medical officers present, but in the great majority of cases the decision rested with the military officer who was chairman of the board. Having dealt with certain individual cases the honourable Member said that there was complete evidence that many thousands of men were being taken into the Army to-day, and had been taken in during recent months, who were unfit for any form of service.

Sir GODFREY BARING said that as chairman of an appeal tribunal his confidence in medical boards had been rudely shaken. Many of the chairmen of district medical boards were members of the Royal Army Medical Corps. He did not wish to say anything against their honour and integrity, but it must be evident that men who were dependent on the War Office for their professional advancement must wish to do what they believed the War Office required. He believed that these men thought that what the War Office required was quantity, not quality. He should like to see a larger number of civilian medical men made chairmen of medical boards, men who were wholly independent of the War Office.

*Reply for the War Office.*

Mr. MACPHERSON (Under Secretary for War) in his reply insisted that the War Office was acting in good faith. It was hoped by the re-examinations under the Act to get 60,000 "A" men and 60,000 for the other categories, in all 120,000 men. But it had been expected that 920,000 or 950,000 might be called upon for medical examination, and thus those called up for re-examination would in very many cases not see service. Men were now required for the Army whose work could be very well performed by women. The Army to-day was quite a different organisation from the Army of three years ago. Labour in the Army, for instance, had become quite a different problem, and a gigantic problem. Men were required at the front now to look after and drive trains and lorries, to look after horses, to make roads, to check and issue stores, to sterilise clothes, to look after washhouses and baths, to repair harness, boots, and clothes, and to mend rifles. In fact, any man sufficiently well to earn a livelihood in his civil capacity could be of use in the Army. It required one-and a half men behind the lines to keep one man in the trenches. That fact was forgotten in many of the speeches that had been made. The representation was made that all men who were suffering from wounds or poisonous gas or neurasthenia were called up for service. But the

Statutory Order, which was sent to every man who might be liable for re-examination, stated that the notice did not apply to men discharged in consequence of disablement, if it had been certified under the authority of the Army Council or the Admiralty to be the result of wounds (including injury from poisonous gas) received in battle or in any engagement with the enemy or otherwise from the enemy, or in consequence of neurasthenia or allied functional nerve disease, if so certified by a special medical board to be the result of naval or military service in the present war. All that the man had to do was to fill in the form at the back and send it to the recruiting officer, and probably then he would hear no more about it. The only further thing he wished to mention was that he agreed that this re-examination experience might have inflicted hardship. The Government had recognised that, and it was now prepared to say that all men who had served abroad and had been discharged from the Army, and were now coming compulsorily under this Act, if they made a claim at once would be finally discharged. That was to say, every soldier who was disabled by wounds or discharged from sickness or ill-health abroad would be excepted under this Act.

Mr. HOGGE: Is that a concession?

Mr. MACPHERSON: Yes.

Mr. HOGGE: When?

Mr. MACPHERSON: I do not know when it will apply, but it will apply to all those mentioned by me. It had been stated frequently that the War Office issued secret instructions to medical officers, and that on the strength of these instructions men were being forced into the Army. He had denied in the House that any such secret instructions were issued. He denied it again, and he would ask his honourable friend (Mr. Hogge) if he could produce them.

Mr. HOGGE: I have seen them.

Mr. MACPHERSON: Will the honourable Member produce them?

Mr. HOGGE: If the position of the men is not prejudiced. Will you give a pledge of complete immunity?

Mr. MACPHERSON: Certainly. I asked the honourable Member if he would produce these instructions.

Mr. HOGGE: And I said I could do it.

Mr. MACPHERSON: If those instructions were issued—and they were not—they were issued to professional gentlemen. That was the allegation. He did not think any member of a high profession such as the medical profession would receive instructions from anybody without something in writing. Did honourable Members think that Sir Frederick Treves of the Central Medical Board or other men of high professional standing would receive instructions? They would tear up in righteous indignation any secret instructions that might be given by the War Office.

*Army Council's Instruction.*

As a matter of fact one instruction only was issued and it was contained in the Army Council orders. He gave a pledge that every consideration should be given to every man called up for re-examination. The honourable gentleman then quoted at length this instruction. It stated that the Army Council directed that the greatest care and consideration in medical re-examination should be shown for disabled men. Many of them had served overseas, and of those who had so served only men who on re-examination were found fit for category A or for category B (1), B (2), or C (1) were to be called for service. The remainder, men although categorised C (2), B (3), or C (3), were to be allowed to return home. Disabled men who had not served overseas were in a slightly different position. They also deserved in the majority of cases consideration. There were, however, amongst them certain persistent malingerers, and also a certain number who in the earlier days of the war were improperly discharged on inadequate grounds. Even so it was essential that these men should be examined considerately. With regard to the posting of such discharged men as were taken for service and were lower than category A, the policy of the Army Council was that these men should be exposed to the least possible risk of further wounding or disease. In all cases it must be remembered that these men had already served, that many of them had faced trying experiences, and it was not to be expected that on the average their nerve would be as sound as it had been. This Army Council instruction was sent to all medical officers. Men were being examined at the rate of 15,000 a day, and there was a very much depleted staff of medical men to deal with these enormous numbers. If the medical board was in a rural district the president of the board asked the local medical men to assist him, and the board was invariably composed of no fewer than the president and two medical men, but the average board consisted of the president and four members, and at least three medical men passed each case through their hands. If it happened to be an important centre and not a rural area, the local medical board executive committee found the personnel of the board and formed a panel, and he understood that in that case, too, the medical board invariably consisted of the president and two members, and sometimes the president and four members.

Sir R. ADKINS: Can the president's decision override that of his two or four colleagues?

Mr. MACPHERSON: I cannot say definitely at the moment. He went on to point out that for men who had got leave to go before a special medical board, three such boards had been established. In addition, the War Office had recently appointed inspecting officers. The War Office had the advantage of having at headquarters the distinguished services of Colonel James Galloway, who was senior physician to Charing Cross Hospital, and there were the travelling inspectors under General Burney, six of whom had visited every medical board in the country. The inspectors were visiting the main recruiting areas and the areas from which complaints had come. It was quite easy to come to the floor of the House and to make out a case by citing individual cases and investigated cases, but upon the general policy of the War Office he made bold to say that wherever an instance of injustice was brought to its notice individually it had been investigated. In reference to what he had said as to the system of inspection by those medical boards which had been instituted, the inspectors were doing their level best to make the work of those boards as satisfactory and as fair as possible to the unfortunate men who in this great national crisis had to be called upon again to be examined in case they might be of some further service. The Government, he was authorised to say, was quite willing and quite ready to appoint a small Parliamentary Committee to do what the Government had already done—to examine into the working of this Act. The War Office was prepared to meet any criticism or any attack that might be made.

*Mr. Asquith's Criticisms.*

Mr. ASQUITH said that the decision to appoint a Parliamentary Committee had relieved him of a considerable burden. No one could have listened to the two speeches with which this discussion was introduced, and no Member of the House could recall the contents of his letter-bag during the course of the last six weeks without feeling whether or not the 120,000 men had been obtained that they had been got by means which had excited widespread displeasure and indignation. He was not making any charge against the authorities or the War Office, and he was glad that the circular which the Army Council issued was going to be made public. It seemed to him to have been well conceived and well expressed. Instructions, and, indeed, the best paper safeguards which could be invented, would not, in circumstances such as these, prevent the occurrence of gross local and personal cases of hardship. The right honourable gentleman went on to say that he had letters which came to him from every part of the country which convinced him, looking at this thing quite impartially, that everywhere there were men whom no reasonable body of medical or other experts ought ever to have dreamt of passing, he would not say for general service but for any form of military service whatsoever. They frequently complained—he was afraid because these medical boards were very congested with the business—that they, after what had been a very brief and perfunctory examination, and in defiance of the opinion of the medical practitioners who knew the history of the individual concerned, had been passed in an almost reckless fashion into one or other of these categories. He was sorry to say that the evidence on that point was absolutely overwhelming. There was no honourable Member in any quarter of the House hardly who had not received evidence of that fact and that the right of appeal available was very insufficient protection. The right honourable gentleman then dealt with the 490 appeals to the County of London Tribunal in the course of nine months. Of these appeals, in 28½ per cent. of the cases there was no alteration; in little more than 10 per cent. the category in which the man was placed was raised, and in 60 per cent. the category was lowered, and in nearly 20 per cent. of that 60 per cent. not only was the category lowered but the man was referred back or rejected altogether. That showed that in this tribunal in considerably more than half the cases the opinion of the medical board was reversed. If that had been the case in the County of London, honourable members might be sure that it had been the case in other parts of the country also. He did not want in any way to forestall the conclusions of the committee which he was glad was going to be appointed, but he would venture to make one or two suggestions. He thought that the constitution of the medical tribunals of first instance ought to be modified and improved. If it was a fact, as had been stated, that the president had the power—he did not know whether it was so or not—

Mr. BONAR LAW (the Chancellor of the Exchequer): It is not so.

Mr. ASQUITH: My right honourable friend says it is not so, and I am sure it is not intended to be within the competence of the president to overrule the opinion of his colleagues. But has it been the practice that the president of these tribunals had overriden the opinions of his colleagues? If it had, that seemed to indicate a line of reform which he would suggest first and foremost, that it should be clearly understood that there was complete parity of authority between the different members of the medical board, and next, that as far as possible the president of the board should be a person who was not himself in the employment of the War Office. Another suggestion which he should like to make was in regard to men who had been at the front, men who had been wounded and invalided, that when they had been recalled and it had been decided that they were not fit to return the decision should be taken as final.

Mr. BONAR LAW: I think that is the case now.

Mr. ASQUITH: Not from the information which reaches me. What he had said had not been animated by any unduly critical spirit.

*Honest Attempt to Administer the Act.*

Mr. BONAR LAW said that he asked the House to believe that there had been an honest attempt on the part of the War Office to carry out what was the deliberate intention of the Government and the House when the Act was passed. The right honourable gentleman had made a suggestion about the composition of medical boards. It was quite obvious that the appeals could only in any case be a very limited number. He wanted the House to understand what the Government did in this matter. Before the Bill was passed they knew that there would be the need for a far larger force of medical examiners than before. They took all the steps in their power to get competent men. In December last year Colonel Galloway, who was a leading physician at Charing Cross Hospital and an examiner in London University, was appointed by the Government as inspector of these medical boards. He had seen him, and Colonel Galloway had told him that he himself had examined and visited almost every one of them. The House would not think it out of place if he read Colonel Galloway's account of these boards. This was what he said: "There must be errors made from time to time among the large number of decisions arrived at by these medical boards. There must be cases in which differences of temperament of the men under examination and of the medical examiners give rise to friction and cause for complaint. But on occasions too numerous to mention I have been a witness to the patience and courtesy shown by members of the medical boards in cases where these qualities have been subjected to severe trial." Colonel Galloway went on to say that in his opinion these medical boards, the members of which were almost entirely civilian though holding temporary Army commissions and who had their private practices to fall back upon, were rendering great service to the country, and that one of the results of this kind of criticism was that they had the feeling that neither the Government nor the House of Commons was supporting them in their work, and that they were not getting credit for the great services which they were rendering to the country. He (Mr. Bonar Law) was not disposed in the smallest degree to come here on behalf of the Government in a spirit of apology. He was satisfied that at no time had any of the work of the War Office been done so conscientiously, and he doubted whether it had been done more effectively.

In the course of the subsequent discussion Mr. NIELD expressed the view that the whole subject of medical re-examinations needed to be inquired into and drastically overhauled. Sir W. COLLINS emphasised the desirability of giving greater opportunities of access to the special

medical boards. Sir R. ADKINS criticised the medical re-examinations. Mr. HOGGE urged that the Committee of Inquiry should be speedily set to work.

The motion for the reduction of the vote was ultimately withdrawn by Mr. Pringle on the ground that a committee was to be appointed.

*Committee Appointed.*

On Tuesday, June 26th, a Select Committee of the House of Commons was appointed to inquire into and report upon the instructions issued by the War Office with regard to the administration of the Military Service (Review of Exceptions) Act and on the method, conduct, and general administration of medical examinations under the Military Service Acts. The Committee consists of Sir G. BARING, Mr. MONTAGUE BARLOW, Mr. COCHRANE, Colonel FABER, Colonel GRETTON, Mr. H. LAW, Mr. NIELD, Mr. PRINGLE, Mr. CARADOC REES, Mr. SHORTT, and Mr. SUTTON.

## HOUSE OF COMMONS.

THURSDAY, JUNE 21ST.

*Casualties amongst Medical Officers.*

Mr. MACCALLUM SCOTT asked the Under Secretary for War how many medical officers had been killed and wounded respectively since the commencement of the war.—Mr. MACPHERSON answered: The numbers of Regular (including temporary commissioned) and Territorial officers have been as follows:—

| | |
|---|---|
| Killed in action ... ... ... ... ... | 137 |
| Died of wounds ... ... ... ... ... | 58 |
| Died of disease ... ... ... ... ... | 62 |
| Wounded ... ... ... ... ... ... ... | 707 |
| Total ... ... ... ... ... ... ... | 964 |

Figures for Colonial officers are not readily available.

*Medical Students in England and Scotland.*

Mr. MACCALLUM SCOTT asked the Parliamentary Secretary to the Board of Education what were the most recent figures of the number of medical students, men and women respectively, in England and Wales, as compared with the number in the year before the war.—Mr. LEWIS replied: The numbers of medical students in medical schools receiving grants from the Board of Education in 1913–14 and 1916–17 are 3483 and 1981 respectively. The returns made to the Board do not distinguish between men and women students. The figures do not include the medical schools at Oxford University, Guy's and Middlesex Hospitals, Bristol University, or the University Colleges of Nottingham, Reading, Southampton, and Cardiff, with regard to which the Board is unable to supply similar information.

Replying to Mr. MACCALLUM SCOTT, Mr. MUNRO (Secretary for Scotland) stated that he was informed that the figures of medical students attending Scottish Universities were approximately as follows: In the year before the war, 2367 men and 236 women; in the present year, 1510 men and 696 women.

*Superannuation of Officers under the Mental Deficiency Act.*

Replying to Mr. YEO, Mr. BRACE (Under Secretary at the Home Department) said that an order would be issued in due course applying the provisions of the Asylum Officers' Superannuation Act to the officers of certified institutions provided by local authorities under the Mental Deficiency Act. Some difficulties had, however, arisen. In particular, there was no power as the Acts stood at present to aggregate service in these institutions with service in asylums. These difficulties could only be removed by fresh legislation. The matter was not being lost sight of, but it would be impossible, he was afraid, to take it up this session.

*Acting Promotion of R.A.M.C. Officers.*

Captain WRIGHT asked the Under Secretary for War why appropriate acting rank was given to officers of the Royal Army Medical Corps recently sent overseas with special Territorial general hospitals, who were by special arrangement to serve for a minimum period of three months and to be relieved when necessary, when similar appropriate acting rank had been refused to officers of the same corps occupying similar positions in Territorial hospitals in France who had been serving in His Majesty's forces before the war and continuously since mobilisation, and in some cases for over two years at the front, and who were subject to no such special arrangements as to minimum period of service or relief.—Mr. MACPHERSON wrote, in reply: When a general hospital is mobilised at home appropriate rank is given to the superior officers of the unit, but it has been decided that acting promotions need not be given in the case of vacancies occurring in units serving abroad. As stated in my reply last week, the question of acting promotions in such cases is under consideration.

MONDAY, JUNE 25TH.

*Protection of Troops from Venereal Disease.*

Sir G. GREENWOOD asked the Chancellor of the Exchequer whether the Home Office and the War Office had now come to an agreement as to the administrative action to be taken in order to protect the oversea troops from venereal disease; and whether he could state what form such action would take.—Mr. BONAR LAW replied: The military and police authorities are already using such powers as they possess to deal with the evil referred to in the question, and it appears doubtful whether more can be done without legislation, but the matter is receiving constant consideration.

TUESDAY, JUNE 26TH.

*Lunatic Soldiers.*

In answer to Sir G. TOULMIN, Mr. BARNES (Minister of Pensions) said: The cost of maintenance of a discharged soldier under detention in an asylum is chargeable against his pension under the Lunacy Act, 1890, and the Royal Warrant of December, 1914. I have now arranged that a discharged disabled man shall, while in an asylum, be treated on the footing of a private patient, his maintenance being paid for by the State. An extra payment of 3*s.* 9*d.* a week is made to the asylum authorities to enable them to provide suitable private clothing and other amenities for the man, and 2*s.* 6*d.* is given to the man himself for personal comforts. Under Article 6 of the New Warrant and Order in Council special provision is made for the maintenance of the family and dependants of a man in an asylum whose disability is due to war service. The right honourable gentleman also said (in answer to Mr. ELLIS GRIFFITH): If the lunacy is attributable to, or aggravated by, service, the man's wife will, from the date following the man's discharge from the service, receive the same allowance as would be granted to her if she had been left a widow, together with allowances for any children. His dependants will be similarly provided for. If the lunacy is not so attributable or aggravated, the gratuity, in most cases a substantial one, which would have been awarded to the man will be administered by the Ministry in the interests of the man's family under the Lunacy Act of 1890.

# Appointments.

*Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BREW, R. V., has been appointed Medical Officer of Health for the Clutton (Somerset) Rural District.

ELDER, W., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Annan District of the County of Dumfries.

HARCOURT, M. A., M.B., Ch.B. Edin., Temporary Medical Officer and School Medical Officer for the County of Holland (Lincolnshire).

RICHMOND, JAMES ROBERT MARR, L.S.A., L.M.S.S.A. Lond., Acting Medical Officer of Health for the St. Just (Cornwall) Urban District.

STAPLE, JAMES D., M.R.C.S. Eng., Temporary Honorary Medical Officer to the Lyme Regis Cottage Hospital.

WHITWORTH, WILLIAM CUTHBERT, L.R.C.P., M.R.C.S., Temporary Medical Officer for the St. Agnes and Perran Districts by the Truro (Cornwall) Board of Guardians.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*
*When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.*

ABERDEEN ROYAL ASYLUM.—Temporary Assistant Physician. Salary from £250 to £350 per annum, with board, &c.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Resident Medical Officer for six months. Salary at rate of £75 per annum, with board, &c.

BIRMINGHAM.—Female Locum Tenens for Infant Consultation Work for three months. Salary 8 guineas per week.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL, Boscombe Branch.—Resident Medical Officer. Salary £300 per annum, with board, &c.

BRISTOL ROYAL INFIRMARY.—House Physician and House Surgeon. Salary at rate of £120 per annum, with board, &c.

BURTON-ON-TRENT INFIRMARY.—Resident House Surgeon. Salary £250 per annum, with board, &c.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Resident House Physician. Salary £250 per annum, with board, &c.

DARLINGTON GENERAL HOSPITAL.—House Surgeon. Salary £200 per annum, with board, &c.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board, &c.

FARNWORTH, BOLTON, TOWNLEYS MILITARY HOSPITAL.—Female Assistant Medical Officer. Salary £383 5*s.* per annum, with rations, &c.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, &c.
GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon. Salary £150 per annum, with board, &c.
HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill.—Resident House Physician for six months. Salary at rate of £200 per annum.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.
LEICESTERSHIRE EDUCATION COMMITTEE.—Temporary Assistant School Medical Officers. Salary at rate of £350 per annum.
MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Two Female Resident Medical Officers, unmarried. Salary at rate of £200 per annum.
MANCHESTER UNION, NELL LANE MILITARY HOSPITAL, West Didsbury.—Locum Assistant Resident Medical Officer. Salary £7 7s. per week, with board, &c.
MELTON, SUFFOLK, ST. AUDRY'S HOSPITAL FOR MENTAL DISEASES FOR THE COUNTY OF SUFFOLK.—Second Assistant Medical Officer. Salary £250 per annum, with board, &c.; if married, £350 per annum, with board for self only.
NOTTINGHAM GENERAL HOSPITAL.—Holiday Locum Tenens, Female. Salary at rate of £250 per annum, with board, &c.
PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board, &c.
PORTSMOUTH PARISH WORKHOUSE INFIRMARY, WORKHOUSE, AND CHILDREN'S HOME.—First Assistant Medical Officer. Salary £250 per annum, with rations, &c.
QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, &c.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery. Also Election to the Court of Examiners.
ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board, &c.
SALFORD UNION INFIRMARY, Hope, Pendleton, near Manchester.—Female Assistant Resident Medical Officer. Salary £250 per annum, with rations, &c.
SHEFFIELD ROYAL INFIRMARY.—House Physician. Salary £120 per annum, with board, &c.
SOUTH LONDON HOSPITAL FOR WOMEN, South Side, Clapham Common, S.W.—Female House Physician and House Surgeon for six months. Salary at rate of £100 per annum each, with board, &c.
STOKE-ON-TRENT COUNTY BOROUGH.—Female Assistant Medical Officer, in connexion with Maternity and Child Welfare Work, &c. Salary £350 per annum.
SUNDERLAND COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary at rate of £500 per annum.
WOKINGHAM, BERKS, PINEWOOD SANATORIUM FOR TUBERCULOSIS.—Medical Superintendent. Salary £500 per annum, with board, &c.
WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £150 per annum, with board, &c.
YORK, CITY OF.—Temporary Tuberculosis Officer. Salary at rate of £500 per annum.

# Births, Marriages, and Deaths.

## BIRTHS.

BRENAN.—On June 19th, at Carlton-road, Sidcup, the wife of Captain A. R. M. Brenan, R.A.M.C., of a son.
FALWASSER.—On June 23rd, at Warwick House, Maidstone, the wife of Lieutenant-Colonel A. T. Falwasser, R.A.M.C.T., of a daughter.
HAMILTON.—On June 17th, at Holmesdale road, Sevenoaks, and of Lifford House, Dartford, the wife of Major Hamilton, R.A.M.C.T., of a daughter.
KILLICK.—On June 21st, at Trinity House, Maidstone, the wife of Captain C. Killick, R.A.M.C., of a son.
PALMER.—On June 20th, at Nottingham-place, W., the wife of Captain A. C. Palmer, R.A.M.C., F.R.C.S., of a son.
WOOLLARD.—On June 22nd, at Osnaburgh-terrace, N.W., the wife of Herbert Henry Woollard, M.D., Major, A.A.M.C., of a son.

## MARRIAGES.

BATE-TROUBRIDGE.—On June 21st, at Christ Church, Chelsea, John Brabant Bate, Captain, R.A.M.C.T., and West African Medical Staff, to Helen Cecil Margaret, youngest daughter of the late Colonel Sir Thomas Troubridge, Bart., C.B.
ELLIS—FRASER.—On June 18th, at St. Mary Abbots Church, Kensington, Captain G. W. Ellis, R.A.M.C.(T.), to Mary Taylor, only daughter of Mr. John Fraser.
MONTGOMERY—MCELROY.—On June 20th, at St. Charles's, Ogle-street, W., by the Rev. Ernest D. Hanlin, Samuel Alexander Montgomery, Captain, R.A.M.C., to Nellie Teresa, daughter of the late Mr. Bernard McElroy, Leighertain, Killala, co. Mayo.
RUDKIN—WINCH.—On June 23rd, at Holy Trinity Church, Northwood, Captain G. W. R. Rudkin, R.A.M.C., to Alice Edith, eldest daughter of R. F. Winch, M.A. Camtab., and Mrs. Winch, of St. Valery, Northwood.

## DEATHS.

BALLANTYNE.—On June 26th, at Holker House, Darwen, James Todd Ballantyne, Physician and Surgeon, the much-loved husband of Susannah Ballantyne, in his 73rd year. Funeral, Saturday, June 30th. Service, Belgrave Chapel, Darwen, 10.30 A.M.
BELL.—On June 19th, at Rathwell, Manitoba, Canada, Robert Bell, M.D., LL.D., D.Sc. Camb., F.R.S., and late of the Geological Survey of Canada, Ottawa.
MILWARD.—On June 18th, at Stanton-road, Wimbledon, James Milward, M.D., M.R.C.S. Eng., L.S.A.
SHELDON.—On June 20th, at Powis-square, W., Thomas Sheldon, M.D., J.P., aged 82.
WRIGHTSON.—On June 20th, at Clare House, Aldeburgh, Suffolk, Richard Blayney Wrightson, M.D.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## ANTHRAX SPREAD BY SHAVING BRUSHES.

IN the later months of 1915, and again at intervals in the course of the succeeding year, outbreaks of anthrax occurred in this country which were suspected to be due to infection conveyed by shaving brushes. In THE LANCET of Jan. 1st, 1916, we published a paper by Dr. Reginald R. Elworthy, who had treated several cases at the West London Hospital. These were the first cases hitherto recorded in which malignant pustule or external anthrax had been caused by this means, and subsequent inquiry revealed the fact that other shaving brushes had been discovered which were grossly contaminated with these bacilli. Dr. Elworthy's investigations proved that infection in the first case was due to the use of a recently purchased shaving brush. The presence of virulent anthrax spores was demonstrated in this brush, and also in several unused brushes of similar pattern, purchased at the shop which supplied the original brush. Another case of anthrax occurring about the same time, which was traceable to the same cause, a further investigation was made which established the common origin of all the cases in a single factory. The matter coming to the notice of the Local Government Board a further investigation of the facts has been made by Dr. Francis J. H. Coutts, whose report[1] has recently been issued by the Board's principal medical officer. In addition to the above cases, in which brushes manufactured in England were implicated, there were, it appears, four further cases of anthrax traceable to brushes of foreign manufacture, two of which occurred in soldiers. The brushes in this case had been made either in Canada, America, or Japan. The full details of Dr. Coutts's report show that, although the danger of anthrax from infected shaving brushes may be limited in extent, it nevertheless constitutes an appreciable risk which ought to be removed. The Board are considering what administrative action, by way of guarantee or otherwise, is required to secure that all brushes used for this purpose shall be free from infection.

## THE MESSAGE OF THE ARTISTS.

MANY of the leading British artists have combined to show in a series of lithographic prints the aims of Britain and her Allies in the war, and also some typical and impressive aspects of the British effort against the enemy. The British aims are shown in a series of allegories printed in colour. "The Freedom of the Seas" is rendered by Mr. Frank Brangwyn, "The Restoration of Belgium" by Mr. George Clausen. Other subjects are undertaken by Mr. Dulac, Mr. M. Greiffenhagen, Mr. Augustus John, Mr. Ernest Jackson, Mr. Gerald Moira, Mr. William Nicholson, Mr. Charles Ricketts, Mr. W. Rothenstein, Mr. Charles Shannon, and Mr. Edmund J. Sullivan. The British effort is typified in several series, such as "Making Soldiers," by Mr. Eric Kennington; "Making Ships," by Mr. Muirhead Bone; and other series by Mr. Frank Brangwyn, Mr. Clausen, Mr. Nevinson, Mr. Hartrick, Mr. Charles Pears, Mr. W. Rothenstein, and Mr. Claude Shepperson. The works will be exhibited in the first instance in the Galleries of the Fine Art Society, New Bond-street, London, for a period dating from July 6th, and afterwards in galleries throughout the country. Arrangements will also be made for their display in Allied and neutral countries.

## A SURVIVAL OF ARCHAIC THERAPEUTICS.

*To the Editor of* THE LANCET.

SIR,—One is not easily surprised nowadays, but I have been surprised recently by a survival of archaic therapeutics which has come to my notice. The patient was a coachman in a good position. Lately he had been acting as gardener and, when using a heavy curved hedger's knife, inflicted a sharp cut on the left wrist at the base of the thumb, baring, but not dividing, two of the extensor tendons. He came to me about eight hours afterwards. On removing a dry dressing a wound about 1½ inches long cleanly united was revealed, evidently closed by "primary union." There was a peculiar yellowish powdery efflorescence about its edges, and I asked what he had applied. "Oh, a very old-fashioned remedy. I just made water over it once or twice while it was still open." Questioned further, he said that this recipe for using fresh urine had been in his family for many years and had come originally from an old "soldier man" of great experience.

[1] Reports on Public Health and Medical Subjects, No. 112, pp. 20, price 6d.

Asked if many still used the method he said, "Oh, there's a goodish few does—them as knows it." It was for fresh wounds only that he recommended urine, not to be applied as a dressing, but solely by natural irrigation. He does not approve of its use as a collyrium for the eyes; and I remember years ago a disgusting old man in the workhouse, bleary with chronic conjunctivitis, whose long-suffering fellows at last complained of his society by reason of his offensive odour. He was ammoniacal—very, and as he apparently contrived to saturate his clothing upwards, right up to the chin, he was followed in one of his frequent visits to the lavatory, and there was seen laboriously to douche both eyes, using the cupped palm of either hand alternately as an eye-bath, after which he returned to the sitting-room. Here the result was not good; in fact, changing the prescription at once produced improvement; but in the case of the cut wrist I am bound to say that I have never seen a fairly severe cut unite more satisfactorily; there was complete absence of inflammation and the union was permanent.

I am, Sir, yours faithfully,

Bromsgrove, June 15th, 1917. H. CAMERON KIDD.

PS.—Since the above was written the patient further informs me that his prescription is well known as an infallible remedy in veterinary work for recent wounds in horses.

## CHEESE-MAKING IN CORNWALL.

THE Cornwall County Cheese School has had a successful four weeks' course of demonstration at Egloskerry. The chairman, at the close of the session, said that cheese-making could be made profitable, as from 393 gallons of milk the students had made 393 lb. of cheese.

## MOHAIR AND ANTHRAX.

THE Director of Army Contracts is now undertaking a census of stocks of wool and wool products and of fabrics containing wool suitable for clothing. There is a medical side in this, and especially is mohair a subject of medical interest. The scarcity of mohair makes itself known to the ordinary man nowadays when he demands a pair of mohair boot-laces, but the medical man thinks of mohair chiefly from its connexion with the history of anthrax, first noted in the Bradford district after the introduction of alpaca and mohair as textile materials in 1837. The amount then used was small, but 30 years later, in 1867, the amount of mohair imported into the United Kingdom from Turkey was 2,421,188 lb., valued at £312,986, and from British South Africa only 43,348 lb., valued at £4985. Thirty years later, in 1897, we imported from Turkey 10,701,390 lb., valued at £742,203, and an enormously increased amount from South Africa of 12,055,390 lb., valued at £634,419. Just before the war, although the amount imported from Turkey was about the same as in 1897, the import from British South Africa had risen to over 24,000,000 lb., valued at over a million sterling. The number of Angora goats in South Africa, ascertained at the census taken in 1911, was 4,275,335, over 3,000,000 of them being in Cape Province. The possession of this number of goats explains the large increase in production of mohair. In 1867 the average price of mohair was 31*d.* per lb.; in 1897, 14½*d.* per lb.; and just before the war had descended to 11*d.* per lb., although the Turkish was 14*d.* per lb. Bradford is the centre of the mohair-spinning trade of the world, so that its influence over the spread of anthrax is mainly felt in this country. Where cases of anthrax have been traced to mohair it is to the Turkish product in the majority of instances. The average production of mohair per annum from each Angora goat is about 2½ lb. In South Africa there is a summer and winter clip, giving long and short hair. The South Africans have taken immense trouble and expense in introducing high-class rams and ewes from Persia, Cashmere, and different parts of Europe, but notwithstanding the quality of the mohair varies in different localities. Bradford, actively concerned in preventing anthrax in its workers and products, has instituted many inquiries into the pathology and spread of the disease. Several sera have been invented for the treatment of the disease, the latest of which was referred to in THE LANCET of May 12th, 1917. Much progress has been made in therapeutics recently, but further study is sure to be repaid. But the war having reduced the supply of mohair from Turkey must have had an influence on the cases of anthrax as well as on textile trade and the personal requirements of the public. The stoppage of imports of many of the articles to which we had become accustomed has undoubtedly often a medical side not always immediately perceivable, and there is a fortunate side to a scarcity of hides and hair.

**The following journals, magazines, &c. have been received:**—Archives of Pediatrics, Pediatrics, American Journal of Medical Sciences, American Journal of Roentgenology, American Journal of Surgery, Bulletin of the Johns Hopkins Hospital, American Journal of Public Health, Anales de la Facultad de Medicina de Granada, Medical Journal of South Africa, Indian Journal of Medical Research, Anales de la Facultad de Medicina, Montevideo, Cornhill Magazine, &c.

# Medical Diary for the ensuing Week.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**POST-GRADUATE COLLEGE**, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

**NORTH-EAST LONDON POST-GRADUATE COLLEGE**, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. H. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

**THE THROAT HOSPITAL**, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

**ROYAL INSTITUTE OF PUBLIC HEALTH**, Lecture Hall of the Institute, 37, Russell-square, W.C. 1.

Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—

WEDNESDAY.—4 P.M., Lecture XII.:—Prof. E. W. Hope: Civil Sanitation and the War. Followed by a discussion.

## BOOKS, ETC., RECEIVED.

COMMITTEE ON PUBLICATION OF THE AMERICAN SURGICAL ASSOCIATION 1334, Rialto Building, Kansas City, Mo.
Transactions of the American Surgical Association, Vol. XXXIV., 1916. Edited by J. F. Binnie, M.D.

DORNAN, WM. J., Philadelphia, U.S.A.
Transactions of American Gynecological Society, Vol. XLI., 1916.

GOVERNMENT PRINTING OFFICE, Washington.
Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XXI. Waterworth—Zysman.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, Sixty-sixth-street and Avenue A, New York, U.S.A.
Reprints, Vol. XXV.

## EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

*Offices:* 423, STRAND, LONDON, W.C. 2.

## MANAGER'S NOTICES.

### ALTERATION IN THE PRICE OF "THE LANCET."

INCREASED war expenses and cost of production necessitate an increase of the price of THE LANCET. Commencing with the new year, the price was raised to 8*d*. The rates of subscription remain as revised in October.

### TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C. 2, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions.

## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, June 27th, 1917.

| Date. | Rain-fall. | Solar Radio in Vacuo. | Maxi-mum Temp. Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks. |
|---|---|---|---|---|---|---|---|
| June 21 | ... | 114 | 67 | 53 | 55 | 63 | Fine |
| ,, 22 | 0·01 | 115 | 68 | 53 | 54 | 60 | Cloudy |
| ,, 23 | ... | 110 | 64 | 50 | 55 | 63 | Fine |
| ,, 24 | ... | 112 | 68 | 53 | 53 | 57 | Cloudy |
| ,, 25 | 0·14 | 113 | 72 | 56 | 57 | 59 | Cloudy |
| ,, 26 | ... | 112 | 70 | 55 | 56 | 61 | Fine |
| ,, 27 | ... | 114 | 68 | 54 | 54 | 59 | Cloudy |

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

## Communications, Letters, &c., have been received from—

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J.—Jeyes' Sanitary Compounds Co., Lond.

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## Letters, each with enclosure, are also acknowledged from—

A.—Mr. E. Arnold, Lond.; Dr. T. R. Atkinson, Chadwell Heath.

B.—Mrs. E. Black, Campsie Glen; Sister Nesbit Brown, Dunmow; Lieut. W. Butterly, R.A.M.C.; Capt. Bean, R.A.M.C.; Dr. B., Bromley; Dr. W. L. Blight, Cardiff; Mr. E. L. Burton, Stansted; Mr. F. C. Blakiston, Lond.

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U.—University Press, Manchester, Sec. of.

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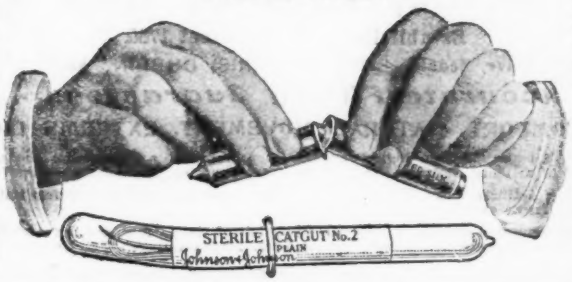


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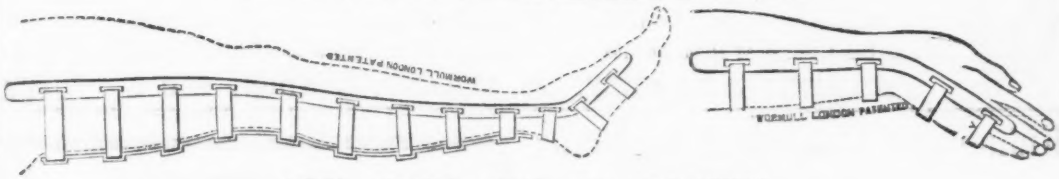


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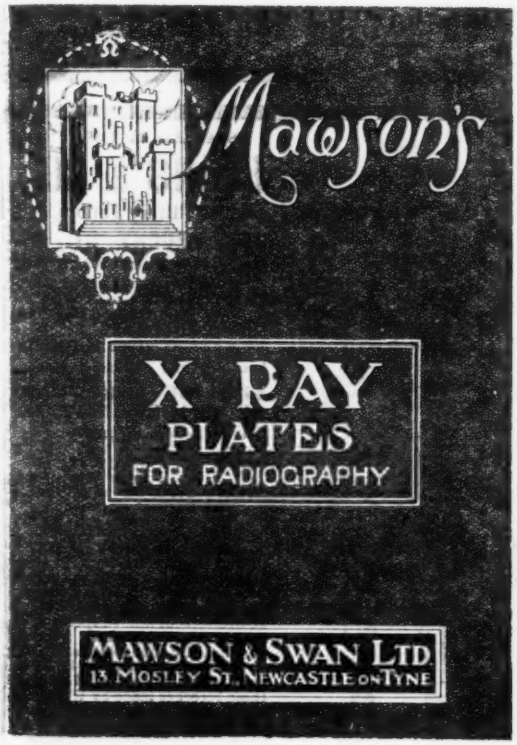


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17—2

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Supplied in packages containing four aseptic glass syringes.

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| Staphylococcus aureus | 125 | 250 | 500 | 1000 million |
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(Pollen Vaccine)

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The method of treating Hay Fever by inoculation with "Pollaccine" (pollen vaccine), introduced by Noon and elaborated by Freeman (*vide* "Lancet," 1911, vol. I, p. 1572, and vol. II, p. 814, also 1914, vol. I, p. 1178), has been employed with excellent results by very many practitioners, some of whom have recorded their cases in medical journals (*e.g.*, "Lancet," 1912, vol. II, p. 1716; "Practitioner," February, 1914, p. 266, and "Liverpool Medico-Chirurgical Journal," July, 1914, p. 260).

"POLLACCINE" (prepared in the Department for Therapeutic Inoculation, St. Mary's Hospital, London) is supplied through the agency of Parke, Davis & Co., in dilutions containing respectively 5, 20, 100 and 500 units per c.c.

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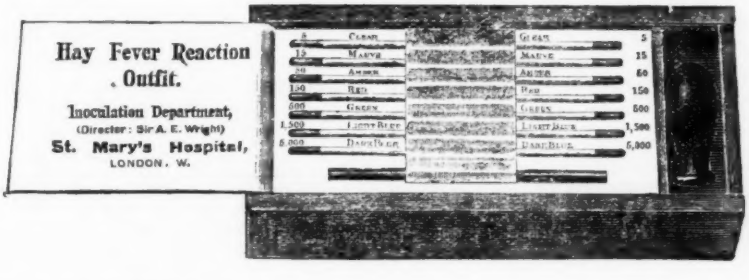


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**Constipation, Enteritis, Hæmorrhoids, Indigestion, Skin Blemishes, &c., &c.**

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**Powerful Antiseptic for Local Gynæcological Use.**

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**Mercurial Cream,** 1 grain of Mercury in each dose, suspended in a semi-fluid, readily absorbable, fatty basis.
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**Salvarsan,** 0.1, 0.2, 0.3, 0.4, 0.5 or 0.6 gramme in each dose, suspended in a semi-fluid fatty basis, specially prepared for intramuscular injection.

**Prices and descriptive leaflet on application.**

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**"Chrismoid" Mercurial Inunction.** We prepare capsules containing in each 2 grammes of 40 per cent. mercurial cream specially prepared for rapid absorption through the skin. These are convenient to carry and cleanly in use.
**Boxes of 12 "Chrismoid" Capsules, 1/6.**

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*West End House:* 7 Vere St., Cavendish Sq., W. *City House:* 37 Lombard St., E.C.

# For Invalids, Dyspeptics and the Aged.

# 'Allenburys' The DIET

## Invaluable in Sickness and Convalescence.

### TITLE IMPORTANT

The "Allenburys" DIET is a complete food chiefly intended for Adults, and is *quite distinct* from the "Allenburys" Foods for Infants. It is quickly prepared, exceptionally palatable, easily digested and wholly nourishing.

### COMPOSITION & PREPARATION

The "Allenburys" DIET is made from pure, rich, full-cream milk and whole wheat, both ingredients being partially pancreatised during the process of manufacture. It needs boiling water only to prepare it for use.

### ANALYSIS

| | |
|---|---|
| Fat ... ... ... ... | 15·4 |
| Proteid ... ... ... | 15·2 |
| Soluble Carbohydrate ... | 47·2 |
| Starch ... ... ... | 15·7 |
| Mineral Matter ... ... | 4·3 |
| Moisture ... ... ... | 2·2 |

Caloric Value of the "Allenburys" DIET when prepared ready for use:

| | |
|---|---|
| Fat ... ... ... ... | 23·8 |
| Proteid ... ... ... | 10·4 |
| Carbohydrate ... ... | 42·9 |

### INDICATIONS FOR USE

In all Gastric conditions where it is found that curd is not digested, Gastritis, Gastro-Enteritis, Gastric Catarrh, Gastric Ulcer, Gastric Influenza, Obstinate Vomiting. In all Acute Disorders. Before and after Surgical Operations. In Convalescence, Gouty Dyspepsia, Insomnia, (taken last thing at night it promotes refreshing sleep and digestive rest). Neurasthenia. All forms of Tuberculosis. In Senile Disorders of the Digestion. When pure milk is not obtainable, viz., on Board Ship, in Tropical Countries or Distant Lands, or whenever a light nourishment is required. For the Invalid, Dyspeptic, and the Aged it is an essential nutrient.

### ADVANTAGES

Most invalids' foods require cow's milk to be used in their preparation; this involves much time and careful mixing to avoid the presence of burnt milk or lumpiness—common characteristics of foods so prepared. The "Allenburys" DIET does not require cow's milk to be added. By the simple addition of boiling water a complete food is produced that is smooth to the palate and pleasant to the taste. The "Allenburys" DIET can be taken for prolonged periods without any distaste arising. These distinct advantages are of immense service in the work of a busy hospital or understaffed sick-room.

MANUFACTURED BY

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Prices: In sealed tins 1/9 and 3 6 each.

'Allenburys' The DIET

☛ A large sample sent free on request.

TRADE MARK
A.D. 1715

# 'Bynin' Amara

TRADE MARK

**FORMULA:**

| | |
|---|---|
| **Quinine Phosphate** ... ... ... ... | **1½ grains.** |
| **Iron Phosphate** ... ... ... ... ... | **2 „** |
| **Nux Vomica Alkaloids** (equal to Strychnine) | **1/6 grain.** |
| **"Bynin," Liquid Malt** ... ... ... ... | **1 ounce.** |

## "A distinct advance on Easton's Syrup"

*THE LANCET.*

### "Bynin" Amara

is an analogue of Easton's Syrup, over which it has, however, marked advantages. In this product, "Bynin," a pure, nutritious, and highly active Liquid Malt, supersedes the inert basis of the official preparation.

### "Bynin" Amara

is vastly superior to Easton's Syrup; the dose can be regulated with exactness; the digestive organs are reinforced and the system is invigorated by its powerful tonic action. It not only assists the digestion of food, but conserves and ensures complete assimilation.

Explanatory Pamphlet and Sample Free to Medical Men.

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# HEWLETT'S SPECIALS

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## Mist. Damianæ Co.
(HEWLETT'S).

Recommended for Neurasthenia, also in the Dyspepsia of commencing Phthisis. It soothes the stomach and enables the patient to take more food, whilst acting as a powerful stimulant in relieving exhaustion.

DOSE: One to two drachms in water.

**Price 11/- per lb.**

In 10, 22, 40, and 90 oz. Bottles.

## Mist. Senecio Co.
(HEWLETT'S).

An effective combination of senecio, hydrastis, pulsatilla, &c., which has proved very efficient in Amenorrhœa, Dysmenorrhœa, and Menorrhagia. Recommended as a general uterine tonic and alterative, with distinct sedative action.

DOSE: Half to one drachm, diluted, two or three times a day.

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An Ideal Tonic Food with Digestive Agent. For children and adults. It is recommended in cases of Nervous Exhaustion, Anæmia, Wasting Diseases, &c., and as a powerful restorative in Convalescence.

"It is of high nutritive value, enhanced by the presence of assimilable phosphates."—*The Lancet.*

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A delicate antiseptic emollient healing Cream, instantly relieving the itching and burning sensation of the skin in cutaneous diseases. In all cases of roughness and irritation of the skin its healing and soothing properties are widely recognised.

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Invaluable in Chronic Biliousness, Jaundice, and all torpid conditions of the liver.

Useful in Constipation, especially when accompanied with depression and general *Malaise.* Does not cause griping or sickness.

DOSE: 10 to 60 minims.

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## Hewlett's Lysol.

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**SURGICAL "CREOSALGEN."**

An Ideal Antiseptic and Germicide, mixing bright and clear with water.

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**UNG. CREOSALGEN** contains 2% Lysol, and is most useful as a healing ointment.

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*(BEEF, WHEAT, and MILK PRE-DIGESTED by ENZYMES).*

"For convalescence, and for administration where nutrition is required without stimulation, this preparation appears to be ideal."

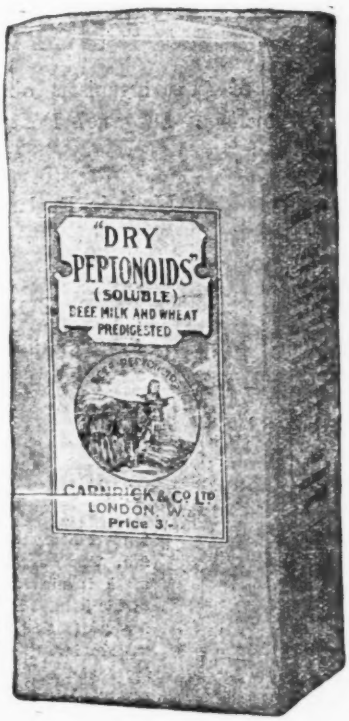
—**THE PRESCRIBER.**

## A CONCENTRATED, ASSIMILABLE, and PALATABLE NUTRIENT.

| | | |
|---|---|---|
| Contains: | **Mineral matter** ... ... | **8·2 per cent.** |
| | **Proteins** ... ... ... | **38·80 per cent.** |
| | **Carbohydrates** ... ... | **48·00 per cent.** |

"In all conditions requiring nutritive reinforcement without stimulation or digestive effort, 'DRY PEPTONOIDS' may be used with the greatest success—for example, in acute infectious diseases: Typhoid, Pneumonia, Wasting Diseases, Carcinoma, Tuberculosis, Gastric or Intestinal Ulceration, &c. In Convalescence it will give good results as a supplement to the ordinary diet for rapid tissue building, and with normal saline it forms an excellent colonic aliment."

—**DUBLIN JOURNAL OF MED. SCIENCE.**




DOSE:—For an adult, a dessertspoonful to a tablespoonful; children in proportion.

DIRECTIONS:—"DRY PEPTONOIDS" may be given dry or in the form of a paste on bread or biscuits, or dissolved in hot or cold liquid media. When used in liquids, triturate the quantity of powder used with some of the liquid into a fine paste, and then add the remainder of the liquid, stirring until dissolved.

*Samples of "DRY PEPTONOIDS" and Literature may be obtained free of charge by Medical Men from*

**CARNRICK & CO., Limited, 183, Acton Vale, London, W. 3.**

COMBATS SERIES, 139—JAPANESE

# Important Sera

TRADE MARK **'WELLCOME'** BRAND

## Concentrated Diphtheria Antitoxin

At least 1000 units in each c.c. Doses of many thousands of units are easily injected and absorbed. Elimination of useless serum albumen is calculated to reduce the risk of serum rashes occurring.

*Supplied in hermetically-sealed phials as follow: 1000 units, 2/0; 2000, 3/6; 3000, 5/0; 4000, 6/0; 5000, 7/0; 6000, 8/0; and 8000, 10/0 per phial*

TRADE MARK **'WELLCOME'** BRAND

## Anti-meningococcus Serum

In the production of this Serum a large number of cultures representing all the various types of meningococci and para-meningococci, obtained during recent epidemics in England and Europe, have been used. The Serum contains a high anti-body titre when tested against all the recognised types.

*Supplied in phials of 25 c.c. at 6/6 each*

TRADE MARK **'WELLCOME'** BRAND **Anti-streptococcus Serum, Rheumatic Fever**

Prepared from organisms obtained from the knee and shoulder joints in several cases of acute rheumatism. Suggested Dosage—10-50 c.c., but this may be increased if it be thought necessary.

*Supplied in phials of 25 c.c. at 6/6 each*

Made in England, at the Wellcome Physiological Research Laboratories

*Distributing Agents:*

BURROUGHS WELLCOME & CO., LONDON

NEW YORK MONTREAL SYDNEY CAPE TOWN MILAN SHANGHAI BUENOS AIRES BOMBAY

*All communications intended for the Head Office should be addressed to*

SNOW HILL BUILDINGS, LONDON, E.C. 1

*London Exhibition Room:* 54, Wigmore Street, W.

**Two military officers of Old Japan, each carrying the commander's iron war fan. The warrior on the left bears the guidon or colours. He wears a metal mask furnished with long moustaches of boar-horse-or deer-skin, and the peak of his helmet is lined with red to throw a lurid light on his face. As well as for protection, masks were used to terrify and deceive: demon faces and "barbarians" were depicted thereon. Young warriors wore masks with old faces and old warriors assumed an appearance of youth. The halberd on the officer's left was carried before him as a sign of his importance. The bow and quiver of the warrior on the right are of bamboo. The custom among the Samurai of wearing two swords is believed to date from the beginning of the fourteenth century; it was abolished by edict in the nineteenth century.**

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COMBATS SERIES, 140—JAPANESE

# For Treatment of Syphilis

TRADE **'KHARSIVAN'** MARK

Approved by the Local Government Board for issue under the Public Health (Venereal Diseases) Regulations, 1916.

Identical chemically, physically and therapeutically with German Salvarsan. Manufactured at the 'Wellcome' Chemical Works, England, and biologically tested under arrangements approved by the British Board of Trade.

*Supplied in hermetically-sealed tubes containing 0·1 gm., 0·4 gm. and 0·6 gm. Prices on application*

TRADE MARK **'WELLCOME'** BRAND

**Calomel Cream**

Contains 5% of calomel with creosote and camphor in refined palmitin. Does not cause pain.

*Supplied in bottles of 2 oz., at* **2/6** *per bottle*

TRADE MARK **'WELLCOME'** BRAND

**Mercurial Cream, Blue**

Contains 10% of metallic mercury with creosote and camphor in refined palmitin. Causes no pain.

*Supplied in bottles of 2 oz. at* **2/6** *per bottle*

TRADE MARK **'HYPOLOID'** BRAND **CALOMEL**

and

**'HYPOLOID'** BRAND **GREY OIL**

Present single doses, sterile and in hermetically-sealed glass containers.

*Each supplied at* **2/6** *per box of 10*

TRADE MARK **'TABLOID'** BRAND

**'IODICIN'** TRADE MARK **grain 3 capsule**

*(Calcium Iodo-ricinoleate)*

For internal iodide treatment without iodism. Given over long periods without symptoms of intolerance.

*Supplied in boxes of 50 at* **3/0** *per box*

**BURROUGHS WELLCOME & CO., LONDON**

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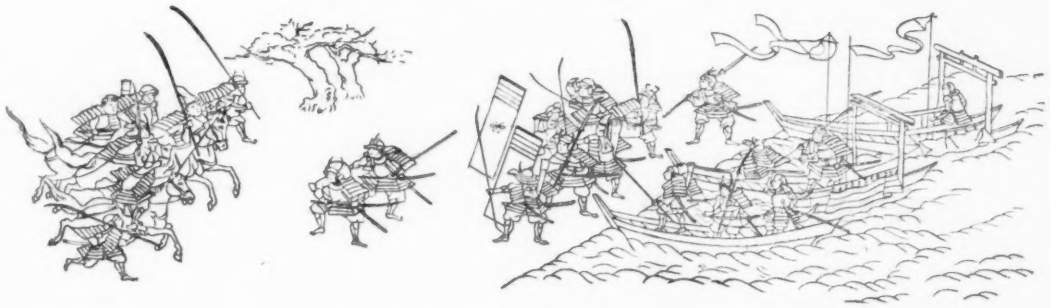

Encounter between land and sea forces in the civil wars of Old Japan. On the left cavalry is seen charging the archers who are disembarking from war junks. These vessels were propelled by oars and were used only for transporting troops to within range of bow or reach of sword. Shields were not carried by individual Japanese warriors, but were used to form a barricade in front of the archers. Date, the Middle Ages.

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Telephone: HOLBORN 1311. (Late M. BRESILLON & CO.) Telegrams: "AMPSALVAS, LONDON."

***Literature and Clinical Reports on Request.***

## *Special Pharmaceutical Preparations.*

### CALYL

Salvarsan and Neo-Salvarsan substitute (Intravenous or Intramuscular). Effective and safe.

Produces no undesirable effects.

### HECTINE

Anti-syphilitic. Low Arsenic percentage. Good results in Intractable Syphilis.

Intramuscular Injection; also in Pills.

### HECTARGYRE

Combined Arsenic and Mercury for treatment of Syphilis.

Especially recommended after a course of Galyl.

Injection; also Pills.

### SUPSALVS

Stable Suppositories of "606" (French manufacture).

Simple, effective, harmless.

Give excellent clinical results.

### MERSALV

A fine Mercurial Cream.

Contains 10 per cent. Metallic Mercury.

A non-greasy preparation, entirely and quickly absorbed.

### IODARGOL

Electro-Chemical Colloidal Iodine in various forms.

Specially successful as an Injection in Gonorrhœa. Painless.

### IODEOL

Colloidal Iodine.

Specific for Pneumococcal Disease, Simple, Infective, or Broncho-Pneumonia. TUBERCULOSIS.

By the mouth or Injection.

### CUPRASE

Specially prepared CHEMICAL Colloidal Copper for CANCER.

Has given most encouraging results in a good number of cases.

Non-toxic.

### CYTO-SERUM

Intensive Strychno-Arsenical Medication for Pulmonary Tuberculosis, Syphilis, Pernicious Anæmia, &c.

### NEOCAINE-SURRENINE

A perfect Cocaine substitute of Low Toxicity.

Reliable and safe.

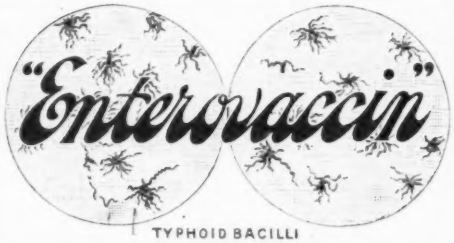
Spinal and Local Anæsthesia.

Ointments, Gargles, Snuffs, &c.

For the treatment of Gonorrhœa and its complications by the administration of Spherules—consisting of cultures of Gonococci, desiccated *in vacuo*. Each milligramme contains about 500 millions bacilli. The clinical effects of Rhéantine are rapid, well marked, and of the most encouraging character.

Dosage: 4 per day.

Sold in metal box containing 28 Spherules.




**Enterovaccin for Anti-typhoid Immunisation** by means of cultures of Eberth desiccated and prepared according to Lumière; made up into spherules, keratine-coated, which are taken by the mouth. In the French Army alone 180,000 men have been successfully treated by this method.

Sold in metal box containing 28 Spherules.

IMPROVED METHOD. **SERUMS** Absolutely Reliable.

*Of the Merieux Institute, Lyons.*

**Antistreptococcus, Antitetanic, Antidiphtheritic.**

***Veterinary*-Mallein, Tuberculin, Antitetanic.**

**Antistreptococcus, Polyvalent,** for Distemper in Dogs.

**"INALTER" VIAL**

**ADVANTAGES.**

The Contents keep indefinitely.

The preparation of the Serum is speedy, simple and perfectly aseptic.

Same price as ordinary Serum.

Ready for use whenever required.

The freshly prepared Serum has full potency and activity.

## *Special Pharmaceutical Preparations.*

### AMBRINE

A great advance in the treatment of Burns (slight or severe).

Gives immediate alleviation of pain.

Also for Chilblains, Ulcers, &c., &c.

### CRYOGENINE

A general Antipyretic. Powerful Analgesic.

**Supersedes** Antipyrin, Phenacetin, and Pyramidon.

### BIOSULFOL

Assimilable Sulphur Colloid.

Entirely absorbed.

For Chronic Mucous Affections, Rheumatism, Skin Diseases, &c.

### DIABETIFUGE

A successful Anti-Diabetic.

Gives most satisfactory clinical results (formula given).

Administered in Cachets.

### ENDOCRISINES

Organo-therapy. Extracts of Internal Secretory Glands prepared *in vacuo* at freezing point.

**BILEYL**

A pure Extract of Ox-gall.

### IODOGENOL

(PEPIN.)

Iodine in its most reliable and palatable form.

Perfectly assimilable. Has 38 times the activity of Potassium Iodide.

Always well tolerated.

### PERSODINE

(LUMIÈRE.)

Composed of pure alkaline Persulphates, in Tablet form.

Perfectly stable. A most energetic tonic and digestive stimulant.

### HEMOPLASE

(LUMIÈRE.)

Hæmoglobin in its natural state.

Iron in most assimilable form.

Tuberculous Affections, Anæmia, &c.

Injection; also Pills or Cachets.

### KINECTINE

A Quinine Salt of Hectine.

Prophylactive and Curative for Hay Fever, Rhinitis, Influenza.

In Tablets.

### URASEPTINE

Composed of Urotropine and Helmitol.

A powerful Urinary Antiseptic.

Dissolves and eliminates uric acid.

### HERMOPHENYL

(LUMIÈRE.)

(Sodium Mercuro-phenyl Disulphonate.)

Antiseptic, Antisyphilitic, of low toxicity.

Tablets for solution; Soap, Ampoules, Pills, &c.

There is an apparent discrepancy at this point.

The pages are either missing or the pagination is incorrect.

The filming is recorded as the book is found in the collections.

THE FOOD

# Chymol

THAT BUILDS

28, VICTORIA STREET, WESTMINSTER,
LONDON, S.W.

*April 23rd*, 1915.

## REPORT ON SAMPLE OF APRIL 14th.

### "CHYMOL."

I have made an examination of the sample of "Chymol" received on April 14th, and find that it contains as follows:—

| | | |
|---|---|---|
| **PROTEIDS (derived from Bone Marrow, Egg Yolk, and Malt)** ... ... ... ... ... | | **4·67** |
| **CARBOHYDRATES as Maltose** ... ... ... | | **48·00** |
| **EMULSIFIED FATS** ... ... ... ... ... | | **17·16** |
| **MINERAL MATTER, ASH CONTAINING IRON** ... ... ... ... ... ... ... | | **0·91** |
| **DILUENTS:** | | |
| **Water** ... ... ... ... ... ... | **13·9** | |
| **Glycerine preservative** ... ... ... | **14·7** | |
| | | **28·6** |
| | | **99·34** |

MICROSCOPICAL EXAMINATION:

The microscopical examination shows that the Fat is properly emulsified and partially hydrolised, so that the food is in an easily assimilable condition. Blood corpuscles associated with large nucleated cells were identified, showing that Red Bone Marrow is an essential of this new food, and hæmoglobin can be identified by spectroscopic examination. From the quantity of iron in the Mineral matter, viz., ·004 per cent., I estimate that this preparation contains ·95 per cent. of hæmoglobin.

No artificial colour, nor flavouring matter, has been detected. The Glycerine is the only preservative present, and the mineral salts are natural constituents of the ingredient foods. By the addition of pancreatin, the food has been partially digested and the fats emulsified, so as to render them more easy of assimilation. I find that there is now no dextrine present in the malt extract, and that the heat sterilisation has not entirely destroyed the activity of the ferments.

The above analysis shows that this food has a heat value of 115 calories per oz. derived from the mixed proteids, fats, and carbohydrates present.

(*Signed*) SAMUEL RIDEAL.

**THE CHYMOL COMPANY, Ltd.,**
**Queen's House, Kingsway, London, W.C. 2.**

# BOOTS PURE DRUG COMPANY LIMITED

**WERE PIONEERS IN THE WAR ON GERMAN TRADE.**

During the past two years New Research Laboratories and Extensive Fine Chemical Works have been established at Nottingham for the manufacture of many of those organic drugs formerly obtained from Germany.

All Boots products are of unsurpassed purity and excellence. They are manufactured under the constant supervision of a large staff of scientifically trained chemists, and the most rigorous analytical control.

Compressed Tablets.

ASPIRIN Boots (Acetylsalicylic Acid B.P.)

(grs. 5).

Equal in every respect to the original Bayer Aspirin, and at Pre-War Prices.
In Bottles of 25 and 100.

Compressed Tablets.

PHENACETIN B.P. Boots

(grs. 5).

Guaranteed Pure.

In Bottles of 25 and 100.

Compressed Tablets.

PHENACETIN & CAFFEIN Boots

(grs. 4). (gr. 1).

In Bottles of 25 and 100.

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SODIUM SALICYLATE B.P. Boots

(grs. 5).

Guaranteed Pure.

In Bottles of 25 and 100.

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HEXAMINE B.P. Boots (Urotropine)

(grs. 5).

Guaranteed Pure.

In Bottles of 25 and 100.

Supplies are available for Prescription Service at all the 555 Branches of BOOTS *THE* CHEMISTS.

*SPECIAL TERMS to Medical Men, Hospitals and Institutions on application.*

# BOOTS PURE DRUG COMPANY LIMITED

Head Offices: STATION STREET, NOTTINGHAM. JESSE BOOT, Managing Director.

# "Infant Welfare Work"

UNDER the above heading an interesting paper by the Medical Officer of Health of an important Midland town is published in a late issue of *The Medical Officer*. After showing that the decrease in Infant Mortality Rates is largely due to improved methods of mothercraft and suitable care in feeding, the author proceeds:—

"Now, undoubtedly, milk as it is bought for domestic use is unfit for infant consumption. I maintain there should be no two opinions in this matter when we remember that milk, before it reaches the consumer, has received contamination from many sources—the cow, the cowshed, the milk vessel, in course of transit, &c.—so that the milk when it reaches the home probably contains at least 1,000,000 organisms per c.c., and that living tubercle bacilli may be found in many milk specimens. .....

"Dried milk is also extensively used at the centres (over £200 worth sold in 1916). Our experience bears out that of Leicester, Sheffield, and other large centres. It gives excellent results, does not tend to produce rickets, and is a very safe food during the hot months of the year. Its other advantages are: its ease of manipulation, it is economical, and the danger of contamination in the home is avoided."

GLAXO is Powdered germ-free milk reinforced by the addition of cream and lactose before the Glaxo process of desiccation.

When mixed with boiling water proportions are obtained dietetically correct as an Infant Food.

GLAXO is packed in sealed tins and reaches the consumer free from contamination.

For over eight years it has been continuously used by the following Municipal Health Departments, amongst many others:—

Sheffield Health Dept. has purchased over ... 170,000 lbs.
Rotherham Health Dept. has purchased over ... 70,000 lbs.
Manchester School for Mothers has purchased over 70,000 lbs.
Bradford Health Dept. has purchased over ... 60,000 lbs.
Lincoln Health Dept. has purchased over ... 30,000 lbs.
Birmingham Health Dept. has purchased over ... 20,000 lbs.

Glaxo

## Dried Milk

## "Builds Bonnie Babies"

*Samples, Analysis and Bacteriological Report on application to*

**Medical Dept., 155, Great Portland Street, London, W. 1.**

(PROPRIETORS: JOSEPH NATHAN & CO., LTD., LONDON.)

# EVERY TIME

A TEST OF THE 'SUNIC' X-RAY PLATE IS MADE BY A RADIOGRAPHER WE ADD A FRESH NAME TO THE LONG LIST OF CONSTANT USERS OF THE

# 'SUNIC' X-RAY PLATES

ORDINARY PRICES.

FULL PARTICULARS IN BULLETIN 12a. POST FREE ON REQUEST.

## WATSON & SONS (ELECTRO-MEDICAL) LTD.

*Manufacturers of X-RAY & ELECTRO-MEDICAL appliances,*

196, GREAT PORTLAND STREET,

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"THE HOUSE FOR EVERYTHING ELECTRO-MEDICAL."

## THE MEDICAL SUPPLY ASSOCIATION.

*Actual Manufacturers of X-Ray and Electro-Medical Apparatus.*

167-185, GRAY'S INN RD., LONDON, W.C.

ALSO AT

Edinburgh, Glasgow, Dublin, Sheffield Belfast, and Cardiff.

E. E. GREVILLE, M.B., C.M., Proprietor.

**Entirely British.**

## GREVILLE'S INTENSIFIED INDUCTION TRANSFORMERS

have proved the best for

INTENSE OUTPUT & CONTINUOUS USE.

INCREASE THE OUTPUT OF YOUR INSTALLATION

by using Greville's Intensified Transformers.

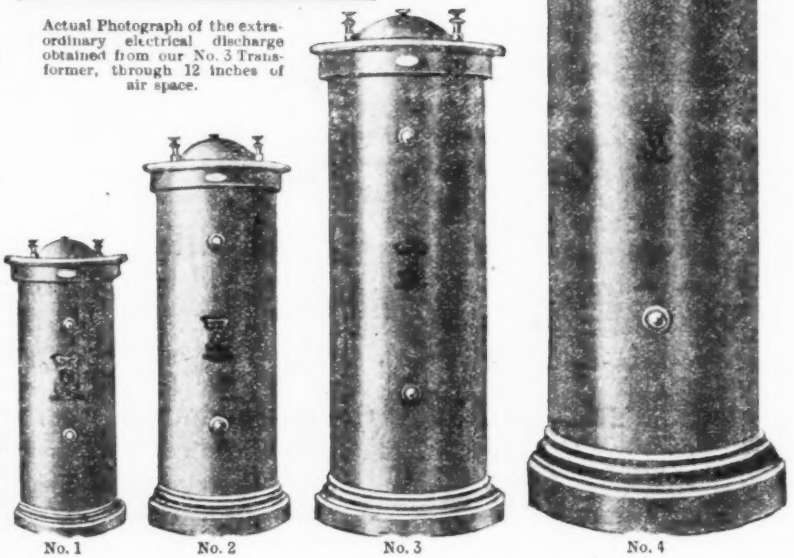
YOU WILL GET BETTER RESULTS.

*Prices: (including Condenser and Variable Primary)*

| Spark length in inches ... | No. 1 8 in. | No. 2 10 in. | No. 3 12 in. | No. 4 16 in. |
|---|---|---|---|---|
| Price ... ... | £25 | £30 | £35 | £45 |

For prolonged and heavy discharges these transformers are undoubtedly the best. A special insulating material, which has been found to be far superior to that commonly used, is employed which permits of heavier discharges and avoids the risk of break down. There are several hundreds of these transformers in continual use.

Actual Photograph of the extraordinary electrical discharge obtained from our No. 3 Transformer, through 12 inches of air space.



No. 1 No. 2 No. 3 No. 4

32

Founded 1834.

# HUMPHREYS'

25 Gold and Silver Medals.

## Mobile Hospital Buildings and the New Patent Brickwork System of Construction for Munition Factories and Dock Sheds.

## SAILORS' & SOLDIERS' MOBILE PANEL HUTS & HOSPITAL WARDS

as supplied from Stock to the

**BRITISH GOVERNMENT DEPARTMENTS, The BRITISH RED CROSS SOCIETY, and ORDER OF ST. JOHN OF JERUSALEM,**

Etc., Etc., Etc.

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Buildings shipped complete from our Works on the Thames, Standard Sizes, Stocked in Sectional Panels, simple in construction, to erect abroad by ordinary labour.

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(Contractors to the Admiralty, War Office, Australian and Canadian Governments.)

33

# Difficult Cases in the Rearing of Infants.

*In difficult cases of Infant Rearing, when cow's milk and other foods cannot be taken, the use of Savory & Moore's Food is generally attended with good results. Particulars of one such case, furnished by a Medical Man, are given below:—*

"When I found it necessary for my wife to wean our baby (3 months old) I first tried milk and barley water; this not suiting I tried....; still not suiting the baby I tried your food, which admirably suited the baby in every way—notably, her bowels being more regular than with the other foods. Also, the baby seems more contented.

"I have ordered Savory & Moore's Food to two other babies on the strength of my own success and they are satisfied.

"I may confess to you that till trying it on my own child I had rarely ordered your food, though I had nothing against it, but now I certainly shall.

———, M.R.C.S., L.R.C.P."

*A SAMPLE OF THE FOOD, with full particulars, will be forwarded on application to Savory & Moore, Ltd., Chemists to The King, New Bond Street, London.*

SAVORY & MOORE'S FOOD

## IN CASES OF ECZEMA

and in all inflamed and irritated conditions of the skin the application of Emol-Keleet will be found to afford great comfort and relief.

Its marked efficacy in the local treatment of all skin affections is due to its recognised absorbent and sedative properties, its impalpable texture, and its complete freedom from organic matter.

As a soothing agent following the injection of vaccines and in alleviating the distressing pruritus accompanying scarlet fever and measles, Emol-Keleet may be employed with most beneficial results.

*Samples free to the Medical Profession on request.*

FASSETT & JOHNSON, Ltd., 86, Clerkenwell Road, London, E.C

Emol-Keleet

THE NATURAL SEDATIVE EMOLLIENT DUSTING POWDER.

# HOMMEL'S HÆMATOGEN

A natural organic IRON TONIC associated with nourishing albuminous proteids.

**Entirely Free from Antiseptics.**

AN EFFICACIOUS REMEDY IN SEVERAL FORMS OF ANÆMIA, associated with constitutional diseases, and A POWERFUL RESTORATIVE when much blood has been lost, as from wounds sustained in action, by post-partum hæmorrhage, or in the course of surgical operations.

IMPROVES THE GENERAL NUTRITION IN TUBERCULOSIS.

PALATABLE, APPETISING, and free from any constipating tendency.

☛ **Please note that HOMMEL'S HÆMATOGEN is and always has been manufactured in SWITZERLAND BY SWISS PROPRIETORS, and that a continuous supply is assured. The price has not been increased.**

**In prescribing please always specify HOMMEL'S Hæmatogen.**

*Samples Free and Carriage Paid on application to—*

HOMMEL'S HÆMATOGEN, 36/36a, St. Andrew's Hill, Doctors' Commons, LONDON, E.C.

**Physiologically Standardised, Sterilised, Non-Alcoholic Digitalis Tincture. Suitable for Internal Administration, Subcutaneous or Intravenous Injection.**

# DIGITAMIN

**THE IDEAL HEART TONIC.**

***Prepared by Professor Dr. Watanabe's method from cultivated Digitalis leaf. Tested and Standardised by Dr. Takei under direction of Prof. Dr. Kinoshita.***

SPECIAL ADVANTAGES: Reliability, extreme rapidity of action, no stomach or intestinal disorders, no cumulative effects, injections painless.

DOSAGE: 8 to 15 minims (0 5 — 1 c.c.) twice or thrice daily, normal for adults. Injections 15 minims (1 c.c.), to be repeated after 1—2 hours.

PACKAGES: Bottles of 15 c.c. or 50 c.c. contents, 5 bottles in a carton. Ampoules of 1 c.c., 6 ampoules in a carton.

**Free Samples may be had by the Medical Profession upon applying to the Sole Consigners:**

**R. MORRISON & Co., 2, FEN COURT, LONDON, E.C. 3.**

First Class Award for Liquors and Liquid Extracts and Pharmaceutical Preparations International Medical Exhibition, London, '81.

# Battley's Liquors

First Class Award at World's Industrial Exposition, New Orleans, 1885, Bronze Medal, St. Louis, 1904.

The following preparations have for many years been used and prescribed by medical men; they are therefore thoroughly recommended both on account of their high therapeutical properties and their great purity as galenical preparations.

## Liquor Opii Sedativus (Battley)

Dose: 5 to 15 minims.

The Oldest and still the Best Hypnotic and Sedative. Twice the strength of Tinctura Opii B.P. Safe in use. No disagreeable after effects. Composition always reliable.

## Liquor Cinchonæ Cord. (Battley)

Dose: 2 to 15 minims.

The most reliable preparation of Cinchona Bark. Contains all the active principles of Yellow Bark. Will remain unaltered for a great length of time, being free from starch, etc.

## Liquor Cinch. Pallidæ (Battley)

Dose: 2 to 15 minims.

A well-known and useful preparation in Malarial Diseases and in Convalescence after Illness. Does not disturb the stomach.

## Liquor Secalis Cornuti (Battley)

Dose: 20 to 60 minims.

Pre-eminent among Ergotic Preparations for Purity and Strength, and has proved to be unrivalled in the following therapeutical actions:—As an Emmenagogue and Ecbolic, in Post Partum Hæmorrhage, as a Hæmostatic, etc.

Battley's Liquors are issued in 2 oz., 4 oz., 8 oz. and 1 lb. bottles.
They are prepared according to the original process of the late Richard Battley.

*Telegraphic Address:* "Sedative, London." *Sole Manufacturers:* *Telephone:* Central 2183.

BATTLEY & WATTS, 18 Wellclose Square, LONDON, E.

TU HUM THE KING

## NERVE SHOCK and WAR STRAIN.

THE organic glycero-phosphates of Lecithin-Ovo are held in perfect solution and stability in Junora Wine. In this form they are readily assimilated by the system, and prove of the greatest value in cases of nerve shock, malnutrition, debility, convalescence or war strain.

JUNORA is supplied in two strengths: Per bottle
A. About ½-gr. Lecithin-Ovo products to the oz... 3/9
B. About 5-grs. Lecithin-Ovo products to the oz... 5 -

SPECIAL TERMS TO MEDICAL MEN.

*A full-sized trial bottle of Junora will be sent free to any Doctor on Application.*

# JUNORA
WINE OF HEALTH

## In DIABETES, GOUT, RHEUMATISM, &c.,

# "G.B."
# Diabetes Whisky

(Late Proprietors: GEO. BACH & CO., LTD.)

**PURE MALT. SUGAR FREE.**

"THE LANCET," *October 5th, 1889.*

"G.B." DIABETES WHISKY.—This whisky is almost absolutely free from extractive matter. It yielded to our analysis only 0·0275 per cent. of solid extract and 0·005 of ash. The alcohol amounted to 44·65 per cent. in weight, equal to 91·60 of proof spirit. It has scarcely any colour, and certainly deserves its name.—(Page 701.)

7/- per bottle, 84/- per dozen, carriage paid.
GUARANTEED TEN YEARS OLD.

**Samples and analyses will be sent on application to the Proprietors.**

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3rd Week. Mr. G. BELLINGHAM-SMITH—Monday and Friday, May 14th and 18th, "Gonorrhœa in the Female."
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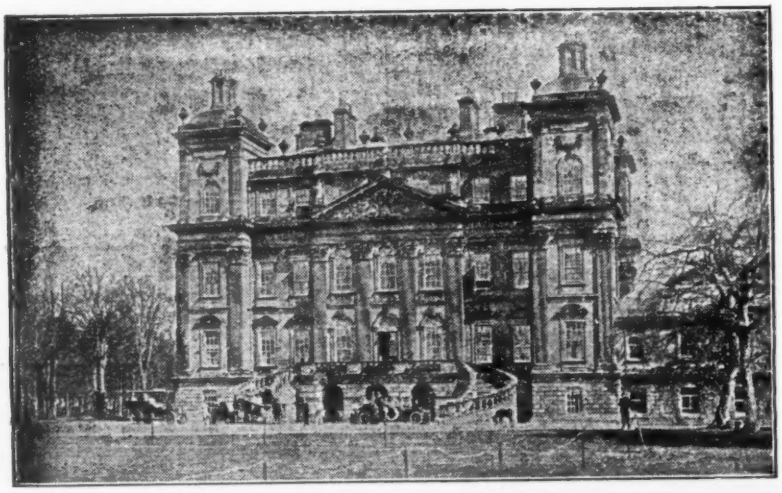

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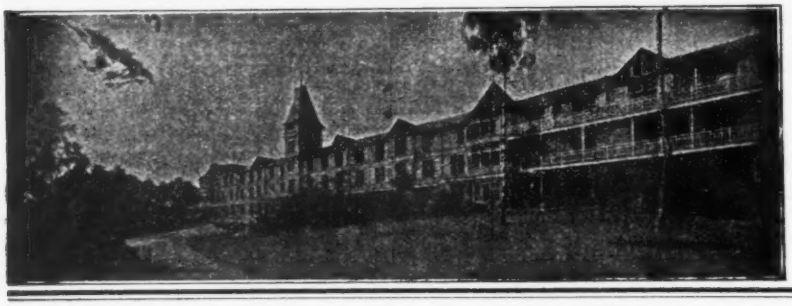

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For particulars, apply C. H. BERRY, M.R.C.S., Sanatorium, Chagford, Devonshire. Telephone: 11 Chagford.

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This Sanatorium (opened 1901) is established for the Treatment of Tuberculosis as carried out by Dr. OTTO WALTHER of Nordrach. It is situated in the midst of a large area of park-land, at a height of 450 feet above the sea-level, on the western slopes of mountains rising to over 1800 feet, which protect it from North and East winds and provide many miles of carefully graduated uphill walks—similar in character and extent to those at Nordrach.

Small rainfall. Porous subsoil. Large amount of sunshine. Electric Lighting and Hot Water Radiators in each room.

The physician himself was a patient at Nordrach.

For particulars, apply to GEORGE A. CRACE-CALVERT, M.B., &c., Llanbedr Hall, Ruthin, North Wales.

# DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints **CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE.** LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER, 46, Spa Enquiry Offices, Droitwich (Worcs.). SPECIAL FACILITIES TO MEDICAL MEN.

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## THE CATERHAM SANITARIUM

"Battle Creek System."

Telephone: 88. Resident Physician:
Telegrams: "HYDRO, CATERHAM." A. B. OLSEN, M.D., D.P.H.

# SMEDLEY'S HYDRO.

**MATLOCK.** Established 1853.

Telegrams: "SMEDLEY'S, MATLOCK."

Physicians: G. C. R. Harbinson, M.B., B.Ch., and Resident.

A complete suite of Baths, including separate Turkish and Russian Baths for Ladies and for Gentlemen, Aix Douches, and an Electric Installation for Baths and Medical purposes. Dowsing Radiant Heat. D'Arsonval High Frequency. Roentgen X Rays. Fango Mud Treatment. Nauheim Baths. Special provision for Invalids. Large Winter Garden. American Elevator. Electric Light. Night attendance. Rooms well ventilated, and all bedrooms warmed in winter throughout the establishment.

MASSAGE AND WEIR-MITCHELL METHODS OF TREATMENT.

A large staff (upwards of 50) of Trained Male and Female Nurses, Masseurs, and Attendants. Prospectus and full information on application to H. CHALLAND, Managing Director.

**Tuberculosis.—Torquay.**—A high-class NURSING HOME offers every facility and comfort for the Open-air Treatment of this and other diseases. Free ventilation by means of storm shutters in spite of lighting regulations. 300 feet altitude. Superb view of sea and moor. Two acres of sunny gardens. Sheltered and sunny verandahs all round house. Fee from 4½ guineas. Matron, "Westholme," Torquay.

Haslemere, Surrey.—The Haslemere Nursing Home. Altitude 700 ft. Medical, Weir-Mitchell, Rest-cure, General Nursing. Especially suited to Neurasthenia or to recruit after illness or operation. Gravel soil.—Apply, Misses Rattray & Moore, "Courtefold" Haslemere, Surrey. Telephone: 22 Haslemere.

Resident Patients.—Descriptive List (Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case and terms to the General Manager, Scholastic, Clerical & Medical Assn., Ltd., 22, Craven-street, Trafalgar-square, W.C.

IN BEAUTIFUL COUNTRY, 18 MILES FROM LONDON.

Littleton Hall, Brentwood, Essex (400 feet above sea-level). A HOME for a few LADIES Mentally Afflicted. Large grounds. Liverpool-street half an hour. Stations: Brentwood one mile; Shenfield one mile. Voluntary Boarders received. Vacancy.—For terms, &c., apply Dr. Haynes. Telephone and Telegrams: Haynes, Brentwood 45.

Temporary Assistant Medical Officer is required for the COUNTY ASYLUM, RAINHILL, near Liverpool, ineligible for military service. Seven guineas a week, with quarters, board, and lodging.

Apply Medical Superintendent.

East Suffolk and Ipswich Hospital. 425 beds (300 for wounded soldiers and sailors). Four Residents.—There will shortly be vacancies here for TWO LADY RESIDENTS. Applicants are asked to write at once to ARTHUR GRIFFITHS, Secretary, The Hospital, Ipswich.

Nottingham City Asylum.—Locum TENENS (Male or Female) wanted for six or seven weeks in June and July next. Must be registered under the Medical Act. Salary £7 7s. per week, with board, apartments, and laundry. Apply, with full particulars, and enclosing copies of recent testimonials, to the Medical Superintendent.

Wells Asylum, Somerset.—Temporary ASSISTANT MEDICAL OFFICER required. Ineligible for military service. £300 per annum, with board, lodging, washing and attendance, with other allowances.

Apply by letter, stating particulars, Medical Superintendent, Wells Asylum, Somerset.

Derbyshire Royal Infirmary, Derby.—There are vacancies for Two HOUSE SURGEONS.

Candidates must be qualified and registered under the Medical Acts.

Salary £200 per annum, with board, residence, &c.

Male applicants should be ineligible for Military Service.

The Hospital contains 363 beds, of which 170 are reserved for Soldiers.

By order.

23rd April, 1917. EDMUND FORSTER, Superintendent.

Leicester Royal Infirmary.—Resident MEDICAL OFFICERS.—Immediate vacancies exist for Two Resident Surgical Officers, and applications from duly qualified Practitioners, ineligible for the Army, are invited.

Applications from Female Practitioners will receive consideration.

Salary £250 per annum, with apartments, &c.

Applications, with testimonials, by Tuesday, the 8th May, To the House Governor and Secretary,

25th April, 1917. Leicester Royal Infirmary.

Nottingham General Hospital.—Wanted, Two ASSISTANT HOUSE SURGEONS, Males (if ineligible for Military or Naval Service) or Females. They will be appointed for six months, the salary in each case to be at the rate of £250 per annum, with board and residence in the Hospital. Duties to commence on the 1st of June, 1917. Applications, stating age, with testimonials, addressed to the Secretary, to be delivered not later than the 11th of May. By order.

E. M. KEELY, Secretary.

Nottingham Children's Hospital.—Wanted at once, a Lady HOUSE SURGEON for this Hospital. The appointment will be for twelve months. Apartments, board, and washing will be provided. Salary at the rate of £200 per annum. Copies of the House Surgeon's Bye-laws can be obtained from the Secretary. Applications, accompanied by testimonials, from candidates holding some of the registrable qualifications, to be sent addressed to the Secretary at the Hospital. Selected candidates will be required to attend at the Hospital for a personal interview.

Hospital for Consumption and DISEASES of the CHEST, Brompton.—The Committee of Management invite applications for the post of HOUSE PHYSICIAN for which there is one vacancy). Applicants must be ineligible for Military Service. The duties include work in the Out-patient Department as well as in the wards. Further particulars may be obtained from the undersigned, to whom applications, with testimonials, should be addressed. The appointment is for six months, with an honorarium of 30 guineas.

May, 1917. FREDERICK WOOD, Secretary.

The Royal Infirmary, Sheffield (353 beds, of which 133 are Military).—HOUSE PHYSICIAN.—Wanted, a Resident Medical Officer (ineligible for Military Service) for the above post.

The person appointed will have charge of the Medical beds under the supervision of the Honorary Medical Staff. Salary £120 per annum, with board and residence.

Applications, with copies of recent testimonials, to be addressed to me immediately. By order.

JNO. W. BARNES, Secretary.

Bury Infirmary.—Wanted, a Junior HOUSE SURGEON (ineligible for Military Service), who must have both Medical and Surgical qualifications. Salary £150 per annum, with board, residence, and washing. Among other duties the person appointed will have charge of the Children's Ward, the Ophthalmic Department, Casualty and Out-Patients' Departments, and the administration of Anæsthetics. Terms of appointment not exceeding nine months, then eligible for the Senior House Surgeon's post if suitable.

Applications, stating age and nationality, with testimonials and photograph, to be sent at once to the Honorary Secretary, Infirmary, Bury, Lancashire.

## Corporation of Manchester.—Applications

are invited for the post of Temporary ASSISTANT TUBERCULOSIS OFFICER for the City of Manchester, at a salary of £400 per annum.

Candidates must be fully qualified Medical Practitioners, ineligible for Military Service, having special knowledge of Medical and Surgical Tuberculosis.

Applications, stating age, qualifications, and experience, and endorsed on the envelope "Assistant Tuberculosis Officer," must be addressed to the Town Clerk only (and not to members of the Committee or Council), not later than May 12th, 1917, and be accompanied by not more than three recent testimonials.

Canvassing in any form, oral or written, direct or indirect, is prohibited. THOMAS HUDSON, Town Clerk.

Town Hall, Manchester, April 19th, 1917.

## Worcestershire, King Edward VII.

MEMORIAL SANATORIUM, Knightwick, near Worcester.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

The Sanatorium Committee invite applications (men or women) for the post of Temporary Medical Superintendent to the above Institution, who will also be required to act as Tuberculosis Officer for the County of Worcester.

The salary will be £450 per annum, with board and lodging at the Sanatorium, and travelling expenses

Men applicants must be over military age, or ineligible for, or discharged from, the R.A.M.C

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, must be received by the undersigned, on or before the 9th day of May, 1917.

Office, 13, Park-avenue, Worcester. J. P. HOLDER, Secretary.

## Bristol Royal Infirmary.—Applications

are invited for appointments of HOUSE PHYSICIAN and HOUSE SURGEON.

The appointments will be made subject to the terms and conditions of the War Office Scheme for granting commissions in the R.A.M.C., for which the successful candidates will be eligible.

Applications also considered from those ineligible for Military Service.

Salary at the rate of £120 per annum, with board, apartments, and laundry.

Candidates must possess registered Medical and Surgical qualifications.

For all particulars and conditions governing these appointments, apply to the undersigned, to whom applications, accompanied by copies of testimonials, should be sent immediately.

W. B. BUDGETT, Secretary & House Governor.

19th February, 1917.

## Warwickshire and Coventry Joint

COMMITTEE FOR TUBERCULOSIS. — TEMPORARY TUBERCULOSIS OFFICER.—The Joint Committee invite applications for the appointment of a Temporary Tuberculosis Officer at a salary of £500 per annum, with reasonable travelling expenses in addition. Women candidates are eligible.

The person appointed must be a registered medical practitioner, and must devote the whole of his time to the duties of the office.

He must have had special practical experience in the treatment of tuberculosis in sanatoria and otherwise, and must be thoroughly acquainted with modern methods of diagnosis and treatment.

He will be required to reside at Coventry, or such other place as the Committee may decide.

Applications must be made on a form to be obtained from the undersigned, who will also on request forward a copy of the terms of appointment and the duties of the office.

E. FIELD, Clerk of the Joint Committee.

Leamington, 27th April, 1917.

## County of Cumberland.—Lady

ASSISTANT MEDICAL OFFICER.—Applications are invited for the position of Lady Assistant Medical Officer to assist the County Medical Officer of Health in School Medical Inspection, Maternity and Child Welfare Work, &c. Experience in treatment of venereal disease will be a recommendation.

Salary £350 per annum.

Particulars as to duties and conditions of appointment may be obtained on application to the undersigned, from whom forms of application may be obtained upon receipt of a stamped and addressed foolscap envelope.

Applications, endorsed "Assistant Medical Officer," accompanied by copies of not more than three recent testimonials, will be received up to Wednesday, 9th May, 1917.

Canvassing directly or indirectly will disqualify.

C. COURTENAY HODGSON, Clerk of the Council.

The Courts, Carlisle.

## Notts County Council.—Appointment

of SECOND ASSISTANT TUBERCULOSIS OFFICER.—The Notts County Council invite applications for the appointment of a Second Assistant Tuberculosis Officer. Salary £400 per annum, together with out-of-pocket travelling expenses.

The appointment is open to ladies or to men ineligible for Military Service, and may be determined by three months' notice on either side.

The person appointed must devote his or her whole time to the duties of the office and reside in such place within the county as the Public Health Committee may decide. He or she will be attached to the County Health Department, and will be required to work under the control of the County Medical Officer of Health, who is Chief Administrative Tuberculosis Officer.

Applications, with copies of not more than three recent testimonials, must reach me not later than 4 o'clock on the afternoon of Monday, the 14th day of May, 1917. By order.

H. HAMPTON COPNALL, Clerk of the Notts County Council

Shire Hall, Nottingham, 24th April, 1917.

## The Royal Sussex County Hospital,

Brighton.—SENIOR HOUSE SURGEON required for middle of May. Candidates must possess a Medical and Surgical qualification of the United Kingdom, hospital experience, and be duly registered under the Medical Acts.

Salary £140 per annum, with a War bonus at the rate of £160 per annum.

Apply immediately to the undersigned, stating age and forwarding testimonials, with proof of above-named qualifications.

L. W. LANCASTER-GAVE, Secretary-in-Charge.

## Victoria Hospital for Children, Tite-

street, Chelsea, S.W. (104 Beds).—The Committee of Management invite applications for the post of Temporary HOUSE PHYSICIAN now vacant. Open to qualified men ineligible for Military Service, or women. Candidates for the post must hold Medical and Surgical qualifications and be registered under the Medical Act. Salary at the rate of £200 per annum, with board and lodging in the Hospital.

Applications with testimonials should be sent to the Secretary, at the Hospital, as soon as possible.—By order, H. G. EVERED, Secretary.

## Bolton Infirmary and Dispensary

(209 beds, mostly Surgical, including Wounded Soldiers).—Applications for the appointment of a SECOND HOUSE SURGEON (ineligible for Military Service) are invited from Ladies and Gentlemen having a registered Medical and Surgical qualification.

Salary £200 per annum, with apartments, board, and attendance.

Applications, stating age, with copy of testimonials, should be forwarded to the undersigned, from whom further particulars may be obtained. ALBERT E. BRISCOE, Secretary.

1st May, 1917.

## Rhondda Urban District Council.—

Applications are invited from Women, or from Men ineligible for Military or Naval Service, for the post of Temporary ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER to the Rhondda Urban District Council, at the salary of £350 per annum, with allowances for necessary travelling expenses.

Applications, giving age, sex, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, to be sent to J. D. JENKINS, Medical Officer of Health, the Council Offices, Pentre, Rhondda, from whom further particulars may be obtained on application.

30th April, 1917.

## Evelina Hospital for Children, South-

wark, London, S.E.—The Committee of Management require a HOUSE PHYSICIAN from 14th May to 12th September, 1917.

Salary at rate of £160 per annum, with board, residence, and washing.

Candidates (either sex) should send applications before 10th instant, with three testimonials (copies only), to the Secretary at the Hospital.

All applicants (qualified and registered) must be interviewed by the Medical Committee. Selected candidates have to appear before the Committee of Management. Time and place of meeting will be notified by the undersigned, from whom rules and other particulars relating to the post *must* be obtained.

By order of the Committee of Management.

1st May, 1917. H. C STANILAND SMITH, Secretary.

## Royal Victoria Infirmary, Newcastle-

upon-Tyne.—Wanted, a RESIDENT MEDICAL OFFICER to the Royal Victoria Infirmary, Newcastle-upon-Tyne. Candidates must be ineligible for military service and must be registered medical practitioners and graduates of a recognised British University or Fellow or Member of one of the Royal Colleges of Physicians or Surgeons of Great Britain or Ireland.

The appointment is for the duration of the war and the salary is at the rate of £300 per annum, with apartments and board.

Full information can be obtained on application to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, to whom applications, accompanied with not more than three testimonials, should be sent on or before Thursday, 10th May, 1917.

30th April, 1917. R. ORDE, House Governor and Secretary.

## The South African School of Mines

and TECHNOLOGY, Johannesburg (under the University of South Africa Act, 1916, a constituent College of the University of South Africa).—The Council of the South African School of Mines and Technology invites applications for the following positions:—

(1) PROFESSOR OF ANATOMY.

(2) PROFESSOR OF PHYSIOLOGY.

In each case the salary will be £1000 per annum, and a three years' contract will be granted.

£75 will be allowed to each Professor for travelling expenses to South Africa, and half salary will be paid from the date of sailing until arrival in Johannesburg.

Applications, in triplicate, stating age, professional qualifications and experience, as well as information regarding publications or researches, should, with copies of three recent testimonials, be sent not later than May 31st to the undersigned.

It is hoped to arrange the appointments so that the successful candidates will arrive in Johannesburg before the end of August.

The gentlemen appointed must be capable of organising their respective departments, which are to be opened in March, 1918. During the present year there will be no teaching in Physiology, but some preliminary work in Anatomy may be given to first year Medical students.

Before appointment, the selected applicants will be required to pass a medical examination.

Further information may be obtained on application to the undersigned. CHALMERS, GUTHRIE & Co., LIMITED,

9, Idol-lane, London, E.C. 3.

**Queen Mary's Hospital for the East** END, Stratford.—CASUALTY OFFICER wanted from 9.30 A.M. to 1.30 P.M. daily. Full particulars may be had from the undersigned, to whom applications should be addressed.

A. W. SCRIVENER, Secretary.

**Victoria Hospital for Sick Children,** Hull (80 Beds).—HOUSE SURGEON wanted end of May. Applications (with copies of recent testimonials), giving age, qualifications, and essential particulars, should be sent as soon as possible to the Secretary

**Cornwall County Asylum, Bodmin.**—JUNIOR ASSISTANT MEDICAL OFFICER (Female). Salary £200, with furnished quarters, board, laundry, and attendance.

The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications, stating age, qualifications, with two recent testimonials, to be sent to the Medical Superintendent.

**Royal Free Hospital, Gray's Inn-road,** W.C.—Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER (Ineligible for Military Service), and should be addressed to the Secretary on or before 14th May, 1917, from whom particulars of the duties may be obtained. Salary £200 per annum.

REGINALD R. GARRATT, Secretary.

**Royal Free Hospital, Gray's Inn-road,** W.C.—Applications are invited for the post of HOUSE PHYSICIAN. Salary £50 per annum, with board, lodging, and washing. The duties also involve the care of 16 beds at the ENDSLEIGH MATERNITY HOSPITAL. Salary given.

Applications should be addressed to the Secretary (from whom further particulars may be obtained) at once.

REGINALD R. GARRATT, Secretary.

**Medical Officer.—Wanted, by the** PARISH COUNCIL OF APPLECROSS, MEDICAL OFFICER and PUBLIC VACCINATOR for the Applecross District of the Parish. Gross emoluments of the post about £320 per annum. House and garden are available. Applications, with recent testimonials, to be lodged on or before the 25th May next, with NEIL BROWN, Esq., J.P., Chairman of Parish Council, Applecross, Ross-shire.

CARE OF THE NATION'S CHILDREN.

**War Work for Medical Women.**—Required on June 1st, a qualified Medical Woman as LOCUM at the BERMONDSEY MEDICAL MISSION for WOMEN and CHILDREN. A large dispensary practice. Good experience. Salary £150 per annum, with board and residence. Application, with copies of testimonials, to be sent at once to Miss S. F. FOX, M.D., 44, Grange-road, Bermondsey, London, S.E.

**Auxiliary Hospital for Wounded,** Lattice Barn, Ipswich.—Wanted at once, a HOUSE PHYSICIAN (either Lady or Gentleman), to take charge of about 100 wounded men, under the direction of two visiting doctors. Applications from fifth-year students will be considered. Board, residence, and laundry found. Applications stating age, qualifications, and essential particulars to be sent to the Clerk to the Ipswich Board of Guardians, 19, Tower-street, Ipswich.

**Western General Dispensary,** Marylebone-road, N.W.—There is a vacancy in the office of HONORARY OPHTHALMIC SURGEON to the above Institution. Candidates, who are required by the laws of the Institution to be Fellows of the Royal College of Surgeons of England, are invited to send in their applications, with copies of testimonials, to the Honorary Secretary at the above address on or before May 8th.

**Bolingbroke Hospital (Incorporated),** Wandsworth Common, S.W.—HOUSE SURGEON required, Male or Female. Appointment for six months or longer. Opportunities for experience in operative surgery. Salary £150 per annum, with board, residence, and laundry.

Applications, with not less than three testimonials, to be sent in not later than Monday, 14th May, 1917, to the Secretary, Bolingbroke Hospital, Wandsworth Common, S.W. 11.

**Haywood Hospital, Burslem.**—Wanted, RESIDENT MEDICAL OFFICER (Female). Salary £200 per annum, with board, residence, and laundry. Must be fully qualified; have had experience in Surgery, Accidents, and in Anæsthetics. Out-patients' department attached to hospital. No out-patient visiting.

Applications, stating age and experience, and when applicant could commence duties, with copies of three recent testimonials, to be sent to me not later than 16 h May, 1917.

Fountain-place, Burslem. F. C. POWELL, Secretary.

**The Guest Hospital, Dudley (115** Beds).—Appointment of MATRON. The Committee invite applications for the post of Matron, at a commencing salary of £80 per annum, together with board, furnished apartments, and washing.

Candidates must be fully-trained nurses, certificated, have had experience in housekeeping, and the management and training of a nursing staff.

Applications, stating age (which must not be over 43 years), where trained, previous experience, and enclosing copies of six recent testimonials, to be sent to the Chairman of the Committee not later than Thursday, May 17th, 1917 ARTHUR BIRD, Secretary.

**Ship's Surgeon. — Messrs. Elder** Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £15 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited. Colonial House, Liverpool.

**Locum Tenens.—No fee to Principals.** —Mr. PERCIVAL TURNER has a large staff of trustworthy Gentlemen acting as Locum Tenentes, and will be happy to send them as required at short notice on application. — Address, 4, Adam-street, Adelphi, London, W.C. 2. Telegrams: "Epsomian, London." Telephone: 399 Gerrard.

**Locum Tenens Provided**

at ONE Hour's Notice.

APPLY

ARNOLD & SONS,

Surgical Instrument Manufacturers,

TRANSFER DEPARTMENT,

6, GILTSPUR STREET, LONDON, E.C.

Telegrams: "Instruments, London." Telephone: 5240 City.

**Locum Tenents, War and Otherwise.**

QUALIFIED DOCTORS AND LADY DOCTORS WANTED.

In consequence of the immediate recruiting of a large number of Practitioners for the R.A.M.C., the demand for substitutes (already large) is much increased, and all qualified Practitioners not already engaged in national work are earnestly requested to communicate with Mr. Percival Turner, of 4, Adam-street, Strand, W.C. 2, with a view to his finding suitable occupation for them so as to release others for the Army.

Practitioners requiring Locum Tenents are invited to give Mr. Turner as long notice as possible of their requirements, and he will do his best to supply satisfactory substitutes at the current rate of remuneration, £7 7s. to £8 8s. a week, depending on the necessary work involved.

NO FEE TO PRINCIPALS. Apply 4, Adam-street, Strand, W.C. 2. Telephone: 399 Gerrard.

**Locum Tenens wanted immediately.**—Mr. Percival Turner has numerous vacancies, in Town and Country, for reliable Locum Tenentes (ineligible for Military Service). Recent references required.—Apply (personally if possible), between 10 and 4, to 4, Adam-street, Adelphi, Strand, W.C. 2.

**Locum Tenens wanted at once** (Ineligible for Military Service). Must have good references.—Apply (personally if possible), Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

**Assistant wanted, Lady or Gentleman,** for Panel and Club Practice on outskirts of Newcastle-on-Tyne. No midwifery except when called by midwife. Salary £350, rooms, and attendance, or seven unfurnished rooms and £450. State age, qualifications, nationality, and give references, to Dr. Bunting, Scotswood-on-Tyne.

**War Work.—Wanted, a Locum, Lady** or Gentleman, ineligible for military service, for duration of war, in a pleasant country town. Good house, garden, and motor car. Also take place of M.O. to Red Cross Hospital of 100 beds for wounded soldiers. Please state terms to Box 344, THE LANCET Office, 423, Strand, W.C. 2.

**Wanted for Client, Medical Man for** Hospital appointment (ineligible for H.M. Forces). Federated Malay States. £600 per annum, rising, free home, passage, &c.—Full particulars, apply, Summerhays, Solicitors, 19, Easteheap, London.

**Good Locums can still be obtained** from LEE & MARTIN, Ltd., 93, Hall-road, Handsworth, Birmingham. Telegraphic address: "Locum, Birmingham." Telephone N. 191.

**M.D., D.P.H., &c., over military age,** desires WAR LOCUMCY in London, in or within easy access to Hampstead for choice. Excellent credentials. Partnership or purchase of Practice entertained.—Write Medicus, care of Goulds, 54, New Oxford-street, W.C.

**Experienced Man shortly free to** LOCUM or Assist in good class Country Practice, view to Partnership, or permanent post institution. Interview can be arranged in London. Address No. 346, THE LANCET Office, 423, Strand, W.C. 2.

**Lady Dispenser and Bookkeeper** with Hospital Training, Hall qualification, and good experience in Private and Panel Medical Practice, Public Health Records, &c., seeks Situation. Recommended by present Principal.—Address No. 347, THE LANCET Office, 423, Strand, W.C. 2.

**Lady,** well educated, Masseuse I.S.T.M., desires post as SECRETARY to Doctor (London). Good typist, knowledge of shorthand, book keeping, and medical electricity. Accustomed to telephone.—Address, No. 345, THE LANCET Office, 423, Strand, W.C. 2.

**Lady-Housekeeper** (young), thoroughly domesticated, good cook, desires position of trust to Medical Man, where maid kept. References.—N. D., care of Doctor, 248, Earlsfield-road, Wandsworth Common, S.W. 18.

**Chauffeuse** (free now) wants position with Doctor. H. F. Vulcanising Certificate. Some knowledge of Nursing and Accounts.—Address, No. 343, THE LANCET Office, 423, Strand, W.C. 2.

**Wanted, Practices and Partnerships.**—Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers, are in urgent need of Practices and Partnerships for several of their Clients who are anxious to settle down at once.—Send full details, in confidence, Arnold & Sons, Transfer Dept., Surgical Instrument Manufacturers, 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

**Partner wanted in Practice of £3000** a year to replace retiring partner. Pleasant Agricultural district near large Midland Town, within 100 miles of London. No opposition. Good house, garden, tennis lawn, &c. Cottage hospital. One Third Share for Sale. Personally known and recommended.—Apply, No. 6125, care of Mr. Percival Turner, 4, Adam-street, London, W.C. 2.

**Wanted, a Partner to take a Third** Share in good-class and Panel Practice in pretty Country Town forty miles from London of £1500 per annum. Hospital in town, and applicant should be competent surgeon and gentleman. Suitable house available. Personal interview requested in London. No agents. Premium £500.—Address, No. 325, THE LANCET Office, 423, Strand, W.C. 2.

**London, S.W.—A Partner required** in a General Practice with view to Succession, situated in a thickly populated suburb producing about £1200 per annum. Panel list 1500. Fees 2s. to 3s. 6d. Excellent house situated in main thoroughfare; rent £ — per annum. Premium one year's purchase, payable part down and the balance by arrangement.—Quote Folio 987, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

**For Disposal.—A really good Practice** is not always to be had directly, but Mr. PERCIVAL TURNER (with thirty-six years' personal experience) can generally offer applicants something suitable on being furnished with details of their requirements. Nearly all the best Practices are Sold by him without being advertised.—Full information free of charge on application, personally or by letter, to 4, Adam-street, Adelphi, Strand, W.C. 2.

**Kent. — £500 a year. — Urgent.—** Unopposed, in good Residential district. Easily worked. Rail close. Price only £325.—Apply, No. 6064, care of Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

**S. Coast.—A General Practice, situ-** ated in a charming seaside resort. Average receipts £1700 per annum. Panel list 1400. Fees 3s. 6d. to 21s. No Midwifery taken. Premium one year's purchase, payable part down and the balance by arrangement.—Quote Folio 984, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

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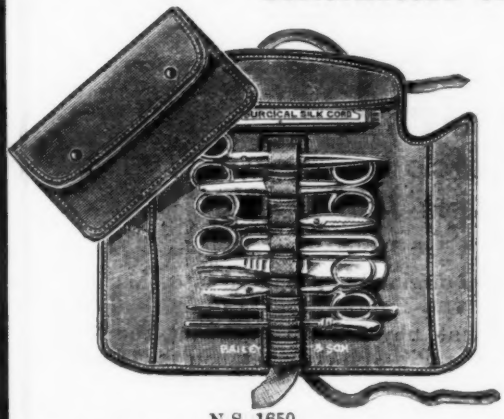

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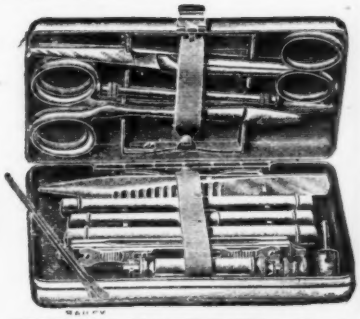

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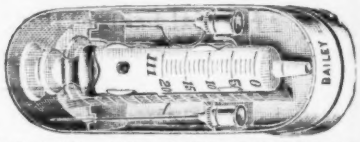

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